



Architecture - **C**omfort - **E**fficiency - **I**AQ

PRODUCT CATALOG

REVISION SEPT 12, 2022



ARCHITECTURE - COMFORT - EFFICIENCY - IAQ

Our **ACEI** philosophy (**ARCHITECTURE - COMFORT - EFFICIENCY - IAQ**) stands behind each product that we offer and every decision that we make.

We thrive on providing innovative air distribution solutions to numerous architectural needs, thermal comfort problems and energy efficiency requirements, and to help push the boundaries of indoor air quality.

EffectiV HVAC high performance architectural diffusers provide very effective solutions to engineering and design challenges.

EffectiV HVAC Inc.

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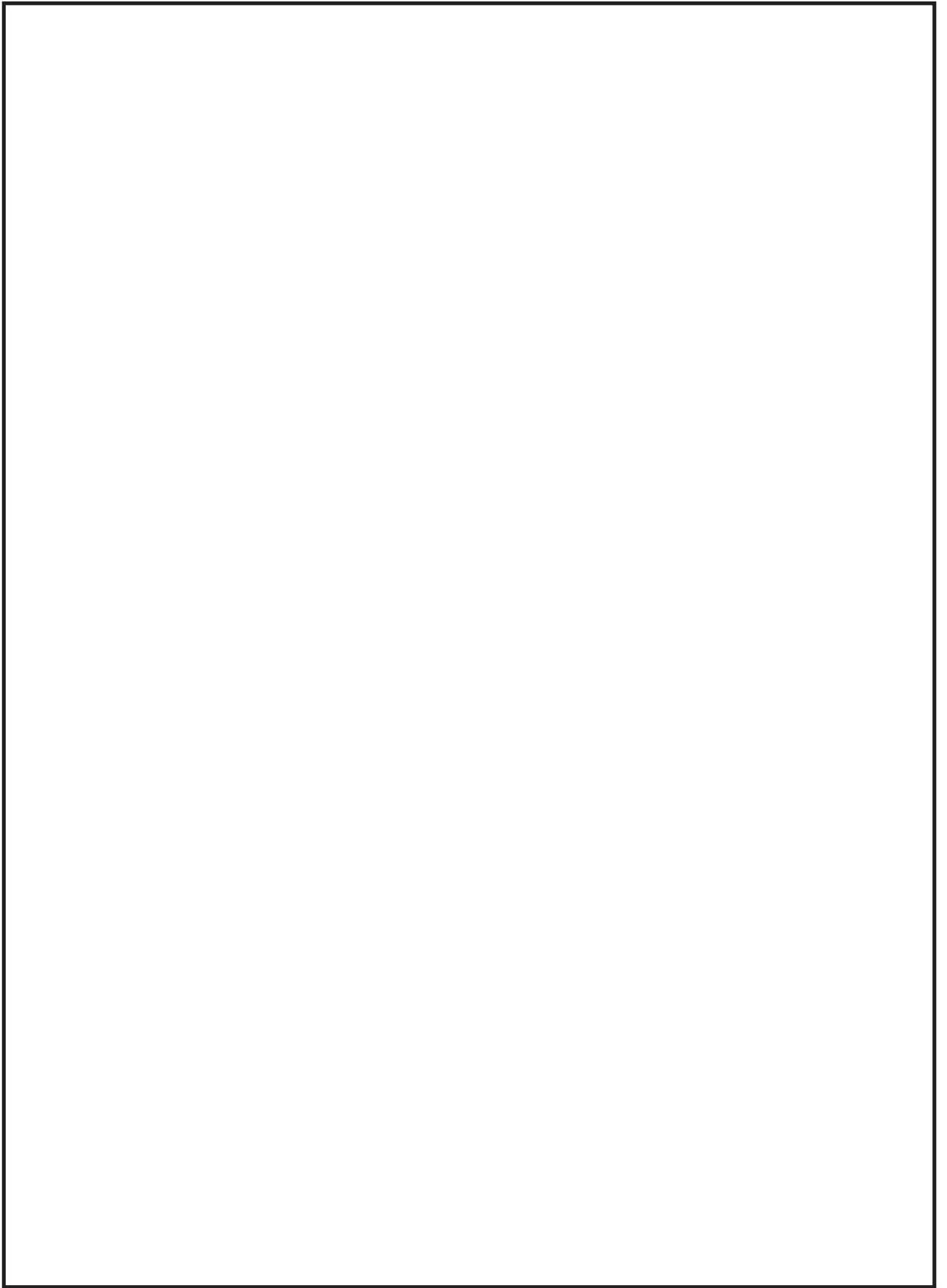
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Table Of Contents

Warranty	9
Finish Chart	10
Air Diffusion	11
AX6 Round Adjustable Aluminum Swirl Diffusers	13
AXO High Induction Swirl Diffusers	23
AXO-TWIST Dual Flow High Induction Swirl Diffuser for VAV Systems	59
AXP Aluminum Round Swirl Diffuser	67
BWC Ventilation Valves	73
DCG Round Adjustable Aluminum Diffusers	77
DSO Round Aluminum Plaque Diffusers	87
KAM Adjustable Nozzle Jet Diffusers	93
KOBE Adjustable Long throw Linear Jet Diffusers	103
KOO Adjustable Long throw Multi-Nozzle Jet Diffusers	113
LSD High Induction Linear Slot Diffusers	125
NEX Concave Elements Architectural Swirl Diffusers	141
OTO Curved Slot Architectural Swirl Diffusers	155
PLAY 360-Degree Adjustable Diffusers	165
RXO Stamped Swirl Diffusers	183
TWIST Compact Stamped Swirl Diffusers	193
Air Purification	197
AXO-HEPA High Induction Swirl Diffusers with HEPA Filter	199
AXO-UV High Induction Swirl UV Diffusers	207
OTO-UV Architectural Swirl UV Diffuser	231
PLAY-UV Adjustable UV Diffuser	245
PLAY-UV Adjustable UV Diffuser	261
Return Air Grilles	277
YIN/FLYIN Architectural Ceiling Returns	279
Balancing	287
SKC Constant Air Volume Dampers	289
SKP Low Pressure Constant Air Volume Dampers	295
Submittal Drawings	305



By Model

AX6-ACTIF Metric Submittal	310	DSO Performance Data	88
AX6-ACTIF-MOD Metric Submittal	312	DSO-R3G Metric Submittal	357
AX6-ACTIF-MOD Submittal	311	DSO-R3G Submittal	356
AX6-ACTIF Submittal	309	DSO Submittal	356
AX6-MA Metric Submittal	308	EB-AB8 Submittal	514
AX6-MA Submittal	307	EB-REMOTE Submittal	515
AX6-MO Submittal	313	EB-SP Submittal	516
AX6 Performance Data	15	FLEXABOOT Submittal	484
AXO-ALU-C/CY Metric Submittal	324	FLEXRIGHT Submittal	485
AXO-ALU-C/CY Submittal	321	FLYIN Submittal	482
AXO-ALU-S300/S400/S/SX/SY Submittal	332	IEH Submittal	512
AXO-C/CY Metric Submittal	318	IEK Submittal	513
AXO-C/CY Submittal	315	KAM-D-ACTIF Metric Submittal	362
AXO-C Performance Data	28	KAM-D-ACTIF Submittal	361
AXO-CY Performance Data	35	KAM-D-M5 Submittal	363
AXO-HEPA Metric Submittal	340	KAM-D Metric Submittal	360
AXO-HEPA Performance Data	201	KAM-D Submittal	359
AXO-HEPA Submittal	339	KAM Performance Data	94
AXO-PHANTOM Performance Data	267	KAM-W-ACTIF Metric Submittal	367
AXO-S300 Performance Data	45	KAM-W-ACTIF Submittal	366
AXO-S300/S400/S/SX/SY Submittal	327	KAM-W-M5 Submittal	368
AXO-S300-UV Performance Data	213	KAM-W Metric Submittal	365
AXO-S400 Performance Data	47	KAM-W Submittal	364
AXO-S400-UV Performance Data	215	KAP Metric Submittal	370
AXO-S Performance Data	37	KAP Submittal	369
AXO-S-UV Performance Data	218	KIS Metric Submittal	374
AXO-SX Performance Data	49	KIS Submittal	371
AXO-SX-UV Performance Data	221	KOBE Metric Submittal	382
AXO-SY Performance Data	51	KOBE Submittal	377
AXO-TWIN Metric Submittal	342	KOO Metric Submittal	392
AXO-TWIN Performance Data	63	KOO Performance Data	115
AXO-TWIN Submittal	341	KOO Submittal	387
AXO-UV Submittal	337	LOF/LAIF Submittal	397
AXO-UV Submittal	343	LOOK-A90 Metric Submittal	411
AXP Metric Submittal	349	LOOK-A90 Submittal	410
AXP-MOD Submittal	346	LOOK Metric Submittal	405
AXP Performance Data	68	LOOK Submittal	400
AXP Submittal	345	LSD-A90 Metric Submittal	421
BOXSTAR Submittal	509	LSD-A90 Submittal	420
BWC Performance Data	74	LSD Metric Submittal	416
BWC Submittal	350	LSD Performance Data	127
DAAXP Submittal	348	LSD Submittal	412
DCG-ACTIF Metric Submittal	354	NEX-ALU-C Submittal	425
DCG-ACTIF Submittal	353	NEX-ALU-S Submittal	433
DCG-M150_L Submittal	355	NEX-C Performance Data	145
DCG Metric Submittal	352	NEX-C Submittal	422
DCG Performance Data	78	NEX-S Performance Data	148
DCG-R3G Metric Submittal	352	NEX-S Submittal	428
DCG-R3G Submittal	351	OBD Submittal	518
DCG Submittal	351	OTO-C Performance Data	159
DSO Metric Submittal	357	OTO-C Submittal	438
DSO-MOD-R3G Submittal	358	OTO-S Performance Data	161
DSO-MOD Submittal	358	OTO-S Submittal	441
		OTO-UV Performance Data	237
		OTO-UV Submittal	446
		PERFAIR-CS Submittal	486

PERFAIR-CT Submittal	488
PERFAIR-RS Submittal	490
PERFAIR-RT Submittal	491
PERFAIR-SCT Submittal	498
PERFAIR-SSS Submittal	494
PERFAIR-SS Submittal	492
PERFAIR-ST Submittal	496
PERFAIR-XSS Submittal	501
PERFAIR-XS Submittal	500
PFILTCOL Submittal	503
PFILT-SS Submittal	502
PF Submittal	517
PLAY-C Performance Data	170
PLAY-C Submittal	448
PLAY-PHANTOM Performance Data	269
PLAY-R Performance Data	172
PLAY-R Submittal	450
PLAY-S Performance Data	174
PLAY-S Submittal	452
PLAY-UV Performance Data	252
PLAY-UV Submittal	457
PLRR Submittal	504
PLX6 Metric Submittal	506
PLX6 Submittal	505
PLXOC Submittal	510
PLXOR Submittal	511
PLXP Metric Submittal	508
PLXP Submittal	507
RSBD Submittal	519
RXO-C Metric Submittal	462
RXO-C Submittal	459
RXO-S-ALU Submittal	469
RXO-S Metric Submittal	468
RXO-S Submittal	463
SKC-C Metric Submittal	471
SKC-C Submittal	470
SKC Performance Data	292
SKC-R Metric Submittal	472
SKP Metric Submittal	474
SKP Performance Data	297
SKP Submittal	473
TAU Metric Submittal	476
TAU Submittal	475
TWIST-ALU Submittal	478
TWIST-CUT Submittal	479
TWIST Performance Data	194
TWIST Submittal	477
YIN Submittal	480

WARRANTY

EffectiV HVAC Inc. guarantees its products against manufacturing defects for a period of two (2) years, from the date of delivery of the goods to the Customer.

The warranty shall only cover the replacement of defective products. It does not include workmanship, trips, replacement of other damaged products, or any other disbursements, charges or damages, and under no circumstance claims for profit or revenue loss that the Customer or third parties may have suffered. The warranty will not be effective in following circumstances:

- When the product has been incorporated to other products or building by the Customer or third parties, without observing the technical recommendations and installation methods recommended by EffectiV;
- When the selection of products was inaccurate or the installation faulty;
- When the product has been manipulated or used for different purposes than those for which it was originally conceived;
- When the products have been damaged due to handling and other manipulations;
- When the products have been damaged due to shipping, unless the shipping was provided and paid for by EffectiV;
- When the products have been damaged due to manipulations or repairs subsequent to their first installation;

Glossiness

- RAL xxxx **B** Shiny 85-95% gloss
- RAL xxxx **S** Satin finish, 60-70% gloss
- RAL xxxx **M** Matte finish, 20-30% gloss

Colors below are standard in Satin Finish 60-70% Gloss

			RAL 7000 Squirrel grey	RAL 7001 Silver grey	RAL 7002 Olive grey
RAL 7003 Moss grey	RAL 7004 Signal grey	RAL 7005 Mouse grey	RAL 7006 Beige grey	RAL 7008 Khaki grey	RAL 7009 Green grey
RAL 7010 Tarpaulin grey	RAL 7011 Iron grey	RAL 7012 Basalt grey	RAL 7013 Brown grey	RAL 7015 Slate grey	RAL 7016 Anthracite grey
RAL 7021 Black grey	RAL 7022 Umbra grey	RAL 7023 Concrete grey	RAL 7024 Graphite grey	RAL 7026 Granite grey	RAL 7030 Stone grey
RAL 7031 Blue grey	RAL 7032 Pebble grey	RAL 7033 Cement grey	RAL 7034 Yellow grey	RAL 7035 Light grey	RAL 7036 Platinum grey
RAL 7037 Dusty grey	RAL 7038 Agate grey	RAL 7039 Quartz grey	RAL 7040 Window grey	RAL 7042 Traffic grey A	RAL 7043 Traffic grey B
RAL 7044 Silk grey	RAL 7045 Telegrey 1	RAL 7046 Telegrey 2	RAL 7047 Telegrey 4		
	RAL 9001 Cream	RAL 9002 Grey white	RAL 9003 Signal white	RAL 9004 Signal black	RAL 9005 Jet black
RAL 9006 White aluminium	RAL 9007 Grey aluminium	RAL 9010 Pure white	RAL 9011 Graphite black	RAL 9016 Traffic white	RAL 9017 Traffic black
RAL 9018 Papyrus white					

The finishes below are also considered part of this standard finish chart:
9010B, 9010M, 9016B, 9016M, 9003B, 9003M, 9005M and 9006M

Other RAL finishes available upon request, please ask for a quote

AIR DIFFUSION

ARCHITECTURE - COMFORT - EFFICIENCY - IAQ



EFFECTIV  TM



AX6

Adjustable Aluminum Round Swirl Diffusers











AX6 SERIES

Aluminum Adjustable Round Swirl Diffusers



AX6
by MADEL®

-  Synchronously adjustable blades, horizontal to vertical airflow
-  Manual adjustment, thermodynamic or with actuator
-  Available with optional security grille for sports facilities
-  Integrated air equalizer
-  Heavy-gauge spun aluminum construction
-  Duct mounted or drywall mounted
-  Commercial and industrial applications
-  Huge energy savings in heating and cooling applications with high ceilings

AX6 series swirl diffusers by EffectiV HVAC™ and MADEL® are designed to supply air in heating, air conditioning and ventilation applications, in premises with ceilings 8.5 feet (2.6 meters) and higher and with temperature differential up to 27°F (15°C). They are suitable for both industrial use and commercial areas.

Their round shape together with the helical design of their vanes cause a swirl diffusion of the air stream, obtaining a high induction rate and reducing the stratification.

The diffusion of the air can be varied by adjusting the supply air angle of the synchronously adjustable blades, changing from horizontal projection to vertical projection in accordance with the supply air temperature.

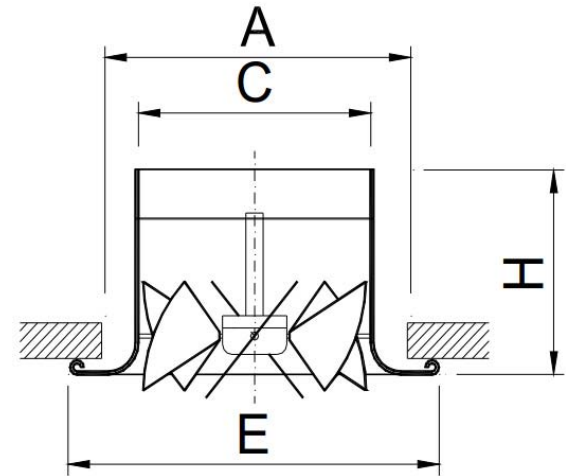
They can be mounted in false ceilings or ductwork or suspended from the ceiling.



Neck Diameter	Free Area (sqf)	Min cfm	Max cfm
10" (250 mm)	0.527	310	580
12.5" (315 mm)	0.839	500	755
16" (400 mm)	1.345	800	1295
20" (500 mm)	2.11	1175	1765
25" (630 mm)	3.358	1980	2945

AX6 Dimensions

	Duct Diameter	A	C	E	H
Imperial	10"	11 13/16	9 3/4	14 11/64	7 61/64
	12.5"	15 3/4	12 21/64	18 17/64	8 55/64
	16"	19 11/16	15 25/32	20 3/64	9 27/32
	20"	24 13/32	19 9/16	27 11/64	12 3/64
	25"	30 45/64	24 11/16	34 1/4	13 25/32
Metric	250 mm	300	248	360	202
	315 mm	400	313	464	225
	400 mm	500	401	560	250
	500 mm	620	497	690	306
	630 mm	780	627	870	350



Some Applications

-  Restaurants, Bars, Hotels
-  Indoor Pools and aquatic complex
-  Movie Theaters
-  Entrance halls (vertical blast)
-  Gymnasiums and sports facilities
-  Warehouses
-  Seasonal heating and/or cooling
-  Open ceilings/exposed ducts
-  High ceilings
-  Energy efficiency requirements
-  Industrial applications
-  Comfort-critical applications



Available Adjustment Mechanisms

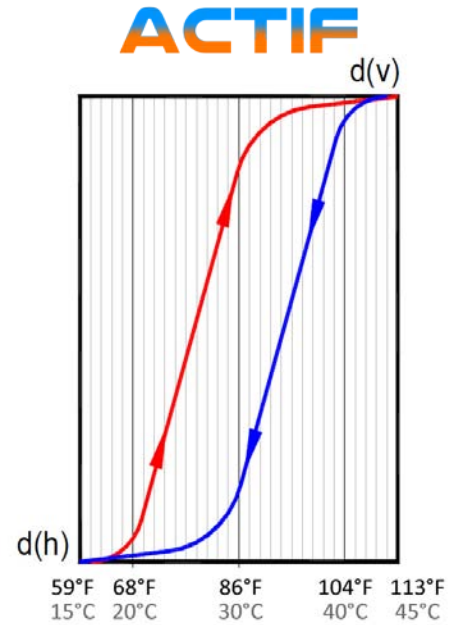
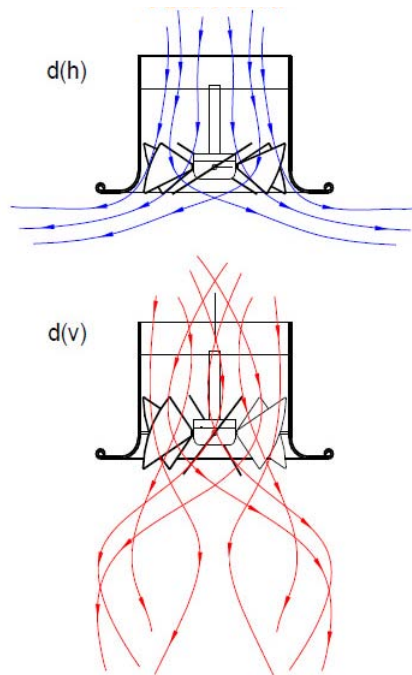
AX6-MA

Synchronously adjustable blades, manually operated.

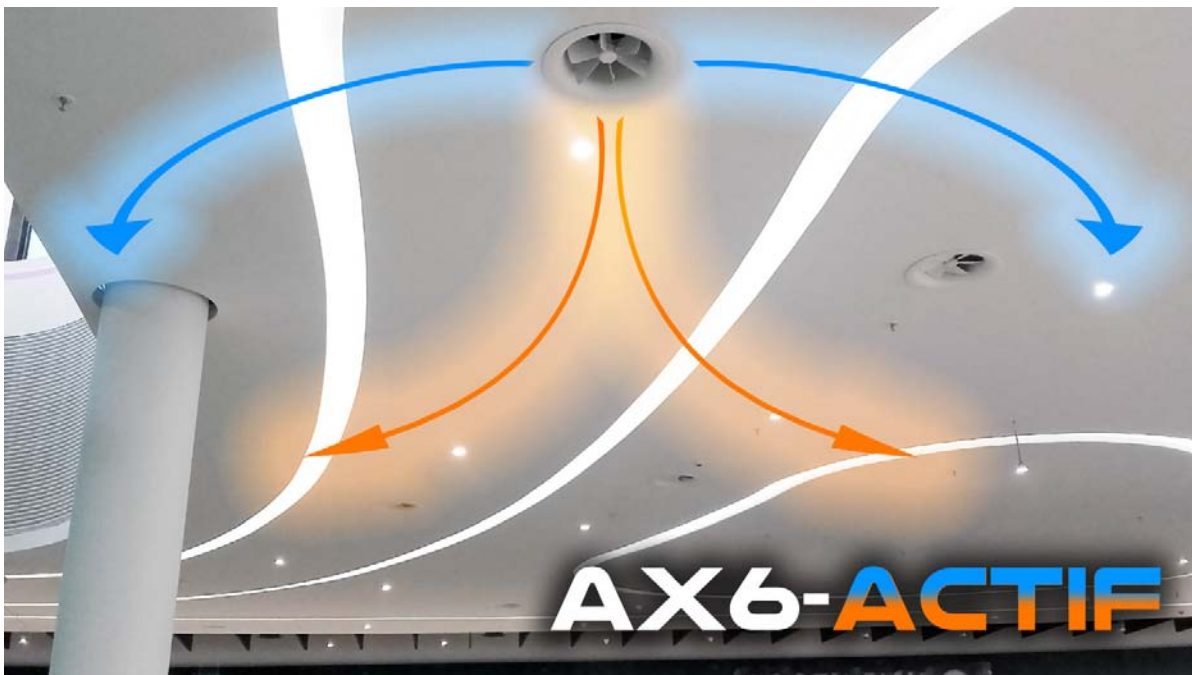
AX6-ACTIF

Synchronously adjustable blades, autonomous thermal adjustment in reaction to supplied air temperature, by means of a thermodynamic piston.

Energy Efficiency Product

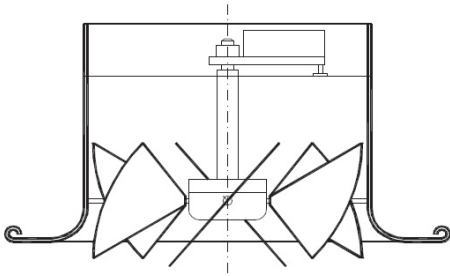


30 minutes adjustment time from d(h) to d(v)
 d(h) = 30 Degree Blades Adjustment
 d(v) = 60 Degree Blades Adjustment



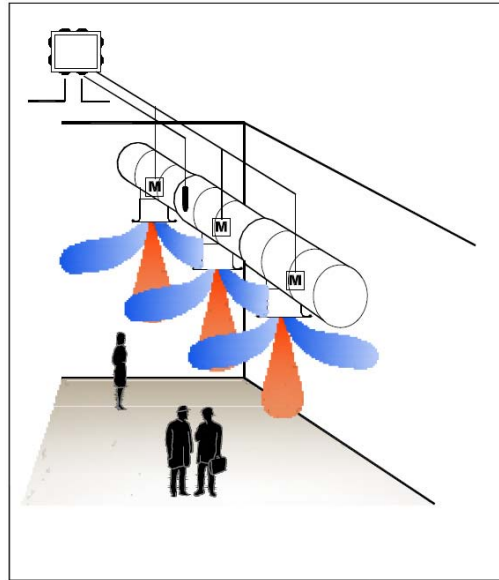
AX6-M0

Synchronously adjustable blades by means of an actuator.

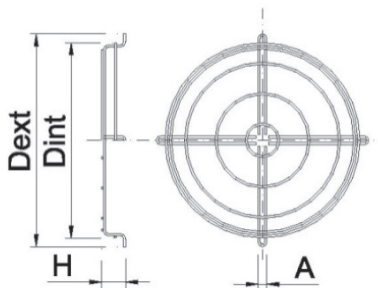


Available With...

- Belimo On/Off Actuator, 24V or 230V
- Belimo Proportional Actuator, 24V
- Siemens On/Off Actuator, 24V or 230V
- Siemens Proportional Actuator, 24V



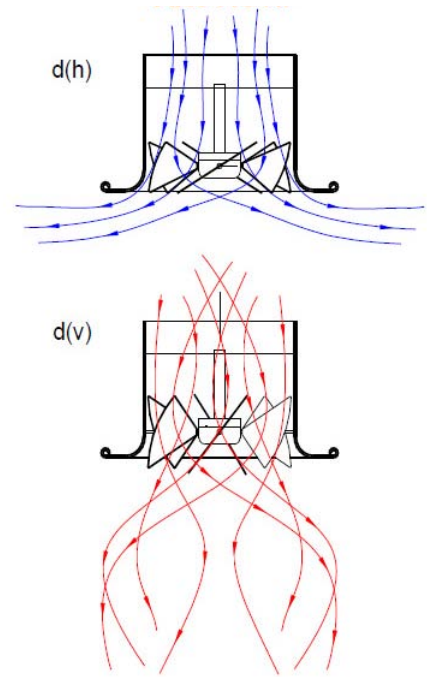
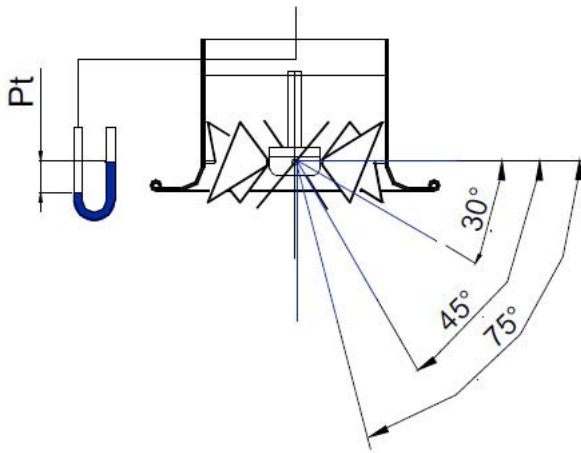
Optional Security Grille For Sports Facilities



CH6 for AX6

	Duct Diameter	Dext	Dint	A	H
Imperial	10"	13 25/32"	11 13/16"	35/64"	1 37/64"
	12.5"	17 23/32"	15 3/4"	35/64"	1 37/64"
	16"	21 21/32"	19 11/16"	43/64"	1 31/32"
	20"	25 25/32"	23 5/8"	43/64"	3 5/32"
	25"	33 55/64"	31 7/64"	25/32"	3 35/64"
Metric	250 mm	350	300	14	40
	315 mm	450	400	14	40
	400 mm	550	500	17	50
	500 mm	655	600	17	80
	630 mm	860	790	20	90

AX6 Performance Data



Isothermal Throw - Swirl 30 Degree Blade Adjustment

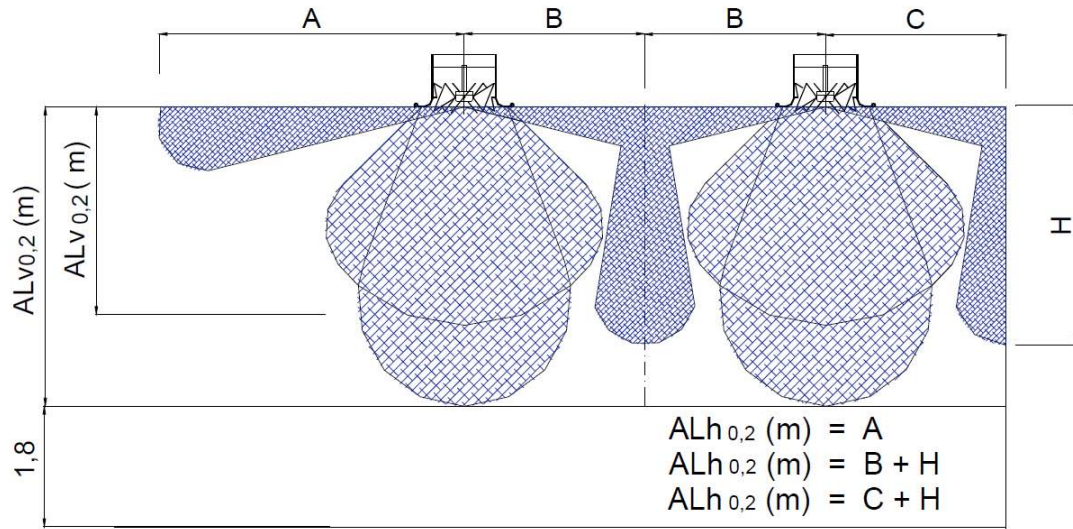


Neck Size	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400
	Velocity Pressure (H2O)		.010	.016	.022	.031	.041	.062	.090
10" (250mm)	CFM	218	273	327	382	436	545	654	764
	Pressure Loss (in.w.g.)	0.161	0.258	0.376	0.522	0.687	1.099	1.099	2.227
	NC	21	27	31	35	38	44	48	52
	Throw (ft) - d(h)	3-6-8	4-7-11	5-9-13	6-10-15	7-12-18	9-15-23	11-19-28	13-22-33
12.5" (315mm)	CFM	335	419	503	587	671	839	1006	1174
	Pressure Loss (in.w.g.)	0.117	0.185	0.269	0.37	0.488	0.774	1.125	1.546
	NC	19	25	31	35	39	45	50	54
	Throw (ft) - d(h)	4-7-10	5-8-12	5-9-13	6-10-15	7-11-16	8-13-19	9-15-22	10-17-25
16" (400mm)	CFM	559	698	838	977	1117	1396	1676	1955
	Pressure Loss (in.w.g.)	0.111	0.174	0.251	0.342	0.448	0.702	1.015	1.384
	NC	< 15	21	27	31	35	42	48	53
	Throw (ft) - d(h)	5-8-11	5-9-13	6-10-14	6-10-16	7-11-17	8-13-19	8-14-21	9-15-23
20" (500mm)	CFM	873	1091	1309	1527	1745	2182	2618	3054
	Pressure Loss (in.w.g.)	0.139	0.213	0.301	0.403	0.519	0.795	1.123	1.506
	NC	26	31	34	37	40	44	48	51
	Throw (ft) - d(h)	5-8-13	6-10-15	7-11-17	8-13-19	8-14-21	10-16-24	11-18-27	12-20-31
25" (630mm)	CFM	1320	1650	1980	2310	2641	3301	3961	4621
	Pressure Loss (in.w.g.)	0.165	0.26	0.375	0.512	0.671	1.053	1.522	2.077
	NC	21	26	30	34	37	43	47	51
	Throw (ft) - d(h)	5-9-14	7-11-17	8-13-20	9-15-22	10-17-25	12-21-31	15-24-36	17-28-42

Performance Notes

- NC value based on 10 db room attenuation
- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

Downward Projection of Heated Air



AL_{0,2} = Distance at which velocity reaches 40 fpm

Downward Projection of Heated Air - 45 Degree Blade Adjustment

Neck Size	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400
	Velocity Pressure (H ₂ O)	.010	.016	.022	.031	.041	.062	.090	.122
10" (250mm)	CFM	218	273	327	382	436	545	654	764
	Pressure Loss (in.w.g.)	0.097	0.156	0.23	0.322	0.426	0.687	1.015	1.415
	NC	< 15	20	26	32	36	44	51	56
	Vertical Throw (ft) - d(v)	14-7-6-5	16-8-7-6	19-9-8-6	21-11-9-7	24-12-10-8	29-14-12-10	33-17-14-11	37-19-16-13
12.5" (315mm)	CFM	335	419	503	587	671	839	1006	1174
	Pressure Loss (in.w.g.)	0.084	0.132	0.192	0.264	0.348	0.55	0.798	1.096
	NC	< 15	18	26	32	37	47	54	61
	Vertical Throw (ft) - d(v)	12-7-5-4	16-9-7-5	19-12-9-6	23-14-10-7	27-16-12-8	35-20-15-10	42-25-19-12	50-30-22-15
16" (400mm)	CFM	559	698	838	977	1117	1396	1676	1955
	Pressure Loss (in.w.g.)	0.064	0.1	0.145	0.197	0.259	0.406	0.587	0.8
	NC	< 15	19	23	28	31	37	42	46
	Vertical Throw (ft) - d(v)	14-10-8-6	17-12-9-7	20-14-11-8	22-16-13-9	25-18-14-11	30-21-17-13	35-25-20-15	40-28-22-17
20" (500mm)	CFM	873	1091	1309	1527	1745	2182	2618	3054
	Pressure Loss (in.w.g.)	0.105	0.162	0.23	0.309	0.4	0.616	0.875	1.178
	NC	24	29	33	37	40	45	49	52
	Vertical Throw (ft) - d(v)	15-9-8-6	18-11-9-8	20-13-11-9	23-15-12-10	25-16-13-11	30-19-16-13	35-22-18-15	39-25-21-17
25" (630mm)	CFM	1320	1650	1980	2310	2641	3301	3961	4621
	Pressure Loss (in.w.g.)	0.082	0.129	0.187	0.257	0.338	0.533	0.773	1.059
	NC	17	24	29	33	37	43	48	53
	Vertical Throw (ft) - d(v)	18-11-8-6	21-13-10-7	25-15-12-8	28-17-13-9	32-19-15-10	38-23-18-13	45-27-21-15	51-31-24-17

Performance Notes

- Vertical throw values (in ft) are respectively for **isothermal** and temperature differences of **9°F (5°C)**, **18°F (10°C)** and **27°F (15°C)** in heating mode, all at **terminal velocity of 40 fpm**.

Downward Projection of Heated Air - 60 Degree Blade Adjustment

Neck Size	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	.090	.122
10" (250mm)	CFM	218	273	327	382	436	545	654	764
	Pressure Loss (in.w.g.)	0.073	0.118	0.173	0.242	0.32	0.517	0.763	1.064
	NC	< 15	19	24	28	32	38	43	48
	Vertical Throw (ft) - d(v)	24-12-10-8	28-14-12-10	33-16-14-11	37-19-16-13	41-21-17-14	50-25-21-17	58-29-24-20	65-33-27-22
12.5" (315mm)	CFM	335	419	503	587	671	839	1006	1174
	Pressure Loss (in.w.g.)	0.065	0.102	0.149	0.205	0.269	0.426	0.619	0.849
	NC	< 15	19	26	31	36	44	50	56
	Vertical Throw (ft) - d(v)	23-14-10-7	30-18-13-9	36-21-16-11	43-26-19-13	50-30-22-15	65-38-28-19	79-47-35-23	94-56-41-27
16" (400mm)	CFM	559	698	838	977	1117	1396	1676	1955
	Pressure Loss (in.w.g.)	0.053	0.083	0.12	0.163	0.214	0.335	0.485	0.661
	NC	< 15	17	21	25	28	34	38	42
	Vertical Throw (ft) - d(v)	25-17-14-10	30-21-17-12	35-24-19-15	39-28-22-17	44-31-25-18	53-37-30-22	62-43-35-26	70-49-39-29
20" (500mm)	CFM	873	1091	1309	1527	1745	2182	2618	3054
	Pressure Loss (in.w.g.)	0.078	0.12	0.17	0.229	0.296	0.456	0.648	0.934
	NC	23	28	33	36	40	45	50	54
	Vertical Throw (ft) - d(v)	25-16-13-11	29-19-16-13	34-21-18-14	38-24-20-16	42-27-22-18	50-32-27-21	58-36-31-25	65-41-34-28
25" (630mm)	CFM	1320	1650	1980	2310	2641	3301	3961	4621
	Pressure Loss (in.w.g.)	0.073	0.115	0.167	0.229	0.301	0.476	0.69	0.946
	NC	17	23	29	33	37	43	49	53
	Vertical Throw (ft) - d(v)	44-26-20-14	53-32-24-17	61-37-29-20	70-42-33-23	79-47-37-26	95-57-44-31	111-66-52-37	126-76-59-42

Performance Notes

- Vertical throw values (in ft) are respectively for **isothermal** and temperature differences of **9°F (5°C)**, **18°F (10°C)** and **27°F (15°C)** in heating mode, all at **terminal velocity of 40 fpm**.

How to Specify AX6-MA

Supply and mounting of manually adjustable round swirl diffuser AX6-MA with synchronously adjustable blades and integrated air equalizer. Constructed from aluminum powder coated in white M9016. By EffectiV HVAC.

How to Specify AX6-ACTIF

Supply and mounting of round swirl diffuser AX6-ACTIF with autonomously thermally adjustable blades by means of a thermodynamic piston. Comes with integrated air equalizer. Constructed from aluminum powder coated in white M9016. By EffectiV HVAC.

How to Specify AX6-MO

Supply and mounting of round swirl diffuser AX6-ACTIF with synchronously adjustable blades by means of an actuator. Comes with integrated air equalizer. Constructed from aluminum powder coated in white M9016. By EffectiV HVAC.

How to Order AX6 Series

AX6	-MA	-CH6	08																																											
				<table border="1"> <thead> <tr> <th></th> <th>Imperial</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Neck Diameter</td> <td>10</td> <td>10"D</td> <td>250</td> <td>250 mm</td> </tr> <tr> <td>12</td> <td>12.5"D</td> <td>315</td> <td>315 mm</td> </tr> <tr> <td>16</td> <td>16"D</td> <td>400</td> <td>400 mm</td> </tr> <tr> <td>20</td> <td>20"D</td> <td>500</td> <td>500 mm</td> </tr> <tr> <td>25</td> <td>25"D</td> <td>630</td> <td>630 mm</td> </tr> <tr> <td></td> <td>CH6</td> <td colspan="3">Security grille for sports facilities</td> </tr> <tr> <td rowspan="3">Adjustment Method</td> <td>MA</td> <td colspan="3">Manually adjustable</td> </tr> <tr> <td>MO</td> <td colspan="3">Adjusted by means of an actuator</td> </tr> <tr> <td>ACTIF</td> <td colspan="3">Automatic thermal adjustment</td> </tr> </tbody> </table>		Imperial	Metric	Neck Diameter	10	10"D	250	250 mm	12	12.5"D	315	315 mm	16	16"D	400	400 mm	20	20"D	500	500 mm	25	25"D	630	630 mm		CH6	Security grille for sports facilities			Adjustment Method	MA	Manually adjustable			MO	Adjusted by means of an actuator			ACTIF	Automatic thermal adjustment		
	Imperial	Metric																																												
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AXO

Adjustable Vanes High Induction Swirl Diffusers












EFFECTIVE  **TM**

AXO SERIES

Adjustable Vanes High Induction Swirl Diffusers



AXO-S & AXO-C
by MADEL®

-  Individually adjustable high induction mixing vanes, available in black or white
-  Multiple patterns available of optimal supply between 50 cfm and 600 cfm
-  Adjustable to swirl, horizontal, vertical or directional
-  High tolerance to air volume variations, temperature variations and duct angle
-  High air flow at relatively low sound power
-  High induction causes rapid reduction of air velocity and temperature difference
-  Square and round shapes available in multiple dimensions and patterns
-  Lay-in, duct mounted or drywall mounted, suitable for all ceilings
-  Heavy-gauge steel or aluminum face construction with ABS vanes
-  Matching high-performance PERFAIR plenums, choice of top or side connection
-  PERFAIR have built-in anti-seismic attachment tabs & air equalizer/volume damper

AXO swirl diffusers by Effectiv HVAC™ and MADEL® are designed to be applied in air conditioning, ventilation and 1 1/10 heating systems. The design of their vanes and radial arrangement supplies the air in a swirl pattern while leveraging the coanda effect. The resulting high induction ratio helps reduce stratification.

The individually adjustable vanes support multiple angles to adapt the airflow to virtually any environment. The sectored vanes, combined with a PERFAIR high-performance plenum mixing box, emit a uniform airflow throughout the passage section.



The AXO series diffusers admit a flow variation of 60% while keeping the air stream stable. For optimal conditions, AXO diffusers may be used in ceilings 8.5 up to 13 feet (2.6 up to 4 meters) high, with a temperature differential up to 22°F (12°C).

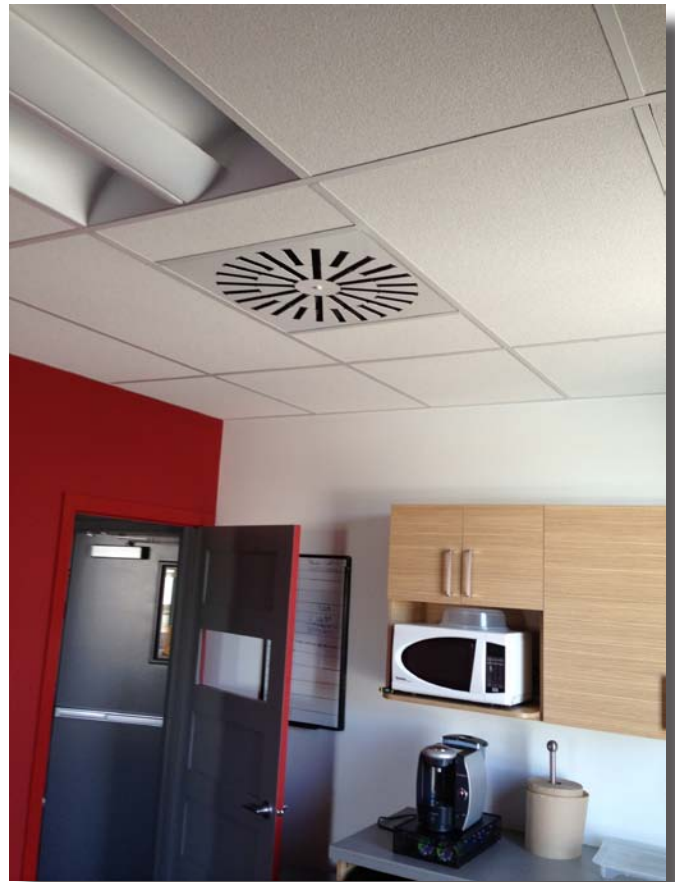
The air pattern adjustability, high level of induction rate and reduced air stratification allow for designs with a much higher level of comfort and provide opportunities for significant energy savings.

The face and plenum box are ordered separately and attached together with a screw through the face which is fixed in the plenum crossbar.

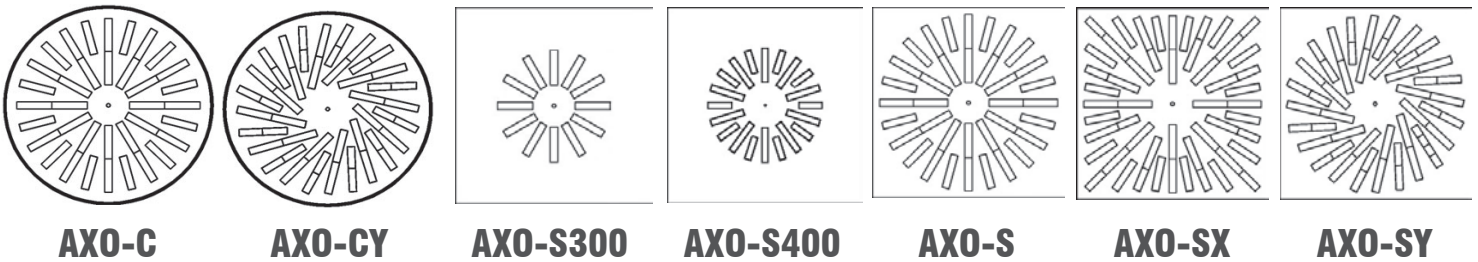
AXO vanes are made of ABS tested in accordance to UL 94 HB *Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances - Horizontal Burning Test*

Some Applications

-  Ideal when comfort and energy efficiency matter
-  Office buildings
-  Schools
-  Clean rooms
-  Classrooms
-  Meeting rooms
-  Cafeterias and restaurants
-  Entrance halls (vertical blast)
-  Multi-purpose rooms



Quick Selection



Circular Models Selection	Min cfm	Max cfm
AXO-C 12 (300 mm)	50	130
AXO-C 16 (400 mm)	100	250
AXO-C 20 (500 mm)	150	330
AXO-C 25, AXO-CY 25 (625 mm)	230	500
AXO-C 33 (825 mm)	360	600

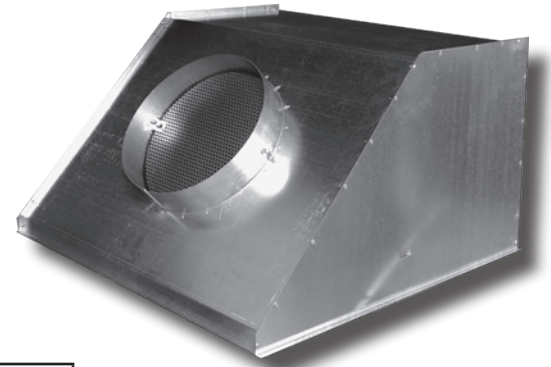
Square Models Selection	Min cfm	Max cfm
AXO-S 12 (300 mm)	50	130
AXO-S 16 (400 mm)	100	250
AXO-S 20 (500 mm)	155	330
AXO-S300 24 (610 mm)	50	160
AXO-S400 24 (610 mm)	100	250
AXO-S 24, AXO-SY 24 (610 mm)	230	500
AXO-SX 24 (610 mm)	300	550
AXO-S 32 (800 mm)	360	600

Important Note: Min cfm and Max cfm are recommended values for optimal performance and can be exceeded in VAV applications.

Plenum Selection

AXO swirl diffusers are available with a wide selection of PERFAIR plenums to suit any type of application. PERFAIR-SS with side connection is the most popular plenum for Square Diffusers and only requires 14" of ceiling space.

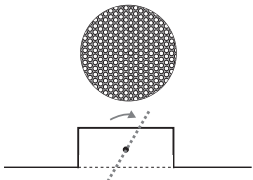
All PERFAIR plenums come with antiseismic tabs and perforated air volume damper / air equalizer.



PERFAIR-SS

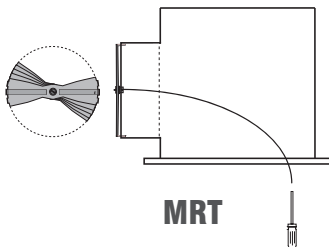
Plenum Model	Face Type	Connection	Recommended For
PERFAIR-CS	Round	Side	False or closed ceiling
PERFAIR-CT	Round	Top	Open ceiling with visible duct coming from top
PERFAIR-SS	Square	Side, Angle	False or closed ceiling
PERFAIR-SSS	Square	Side	Open ceiling with visible duct coming from side
PERFAIR-ST	Square	Top	Open ceiling with visible duct coming from top
PERFAIR-XS	Square	Side, Oval	Very limited ceiling space (6" min)
PERFAIR-XSS	Square	Side, Rect.	Very limited ceiling space (5" min)

Integrated Air Volume Dampers



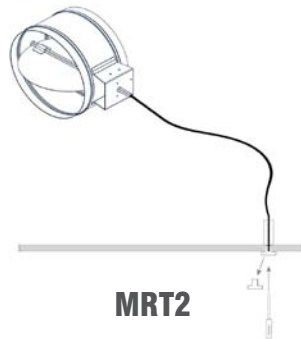
R

Perforated damper + air equalizer (Standard)



MRT

Manually operated damper, cable inside the plenum, adjustment through face



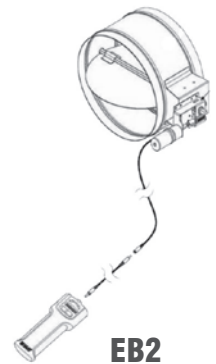
MRT2

Manually operated damper, cable through wall with termination fixture



EB

Battery operated electro-balance damper with remote control, cable through face

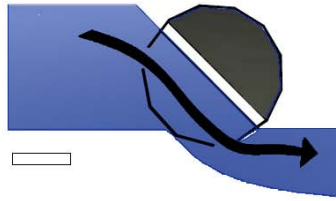
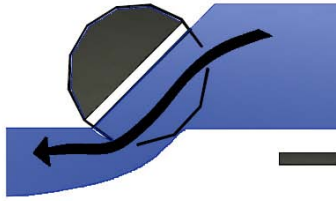


EB2

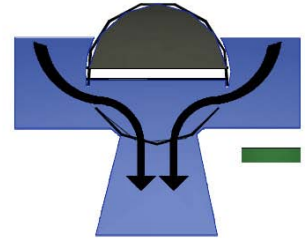
Battery operated electro-balance damper with remote control, cable through wall with termination fixture

AXO Vanes Positioning

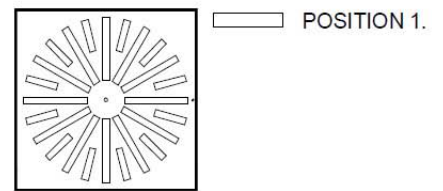
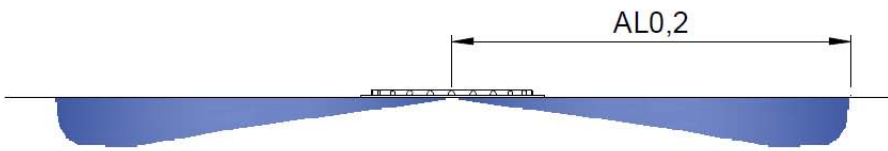
HORIZONTAL SUPPLY.
POSITION 1.



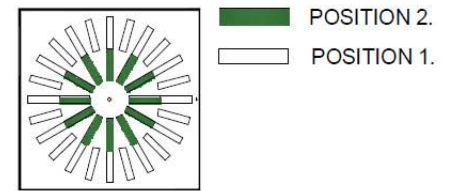
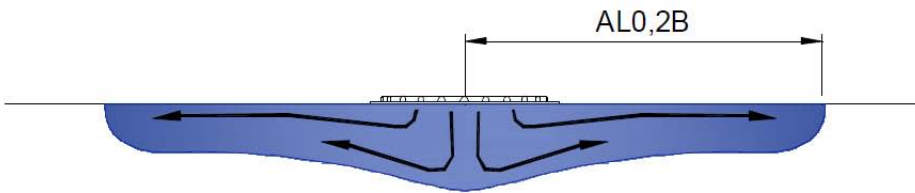
VERTICAL SUPPLY.
POSITION 2.



TYPE A. 100% POSITION 1.



TYPE B. 50% POSITION 1 AND 50% POSITION 2.



$AL_{0.2}$ = Distance at which velocity reaches 40 fpm

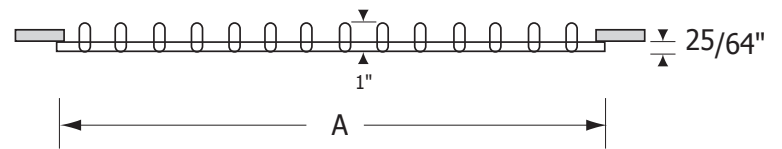
AXO-C Round Diffuser, Radial Vanes



AXO-C

Dim	A (Imperial)	A (Metric)	Free Area (sqf)	Min cfm	Max cfm
12" (300mm)	11 39/64"	295 mm	0.103	50	130
16" (400mm)	15 35/34"	395 mm	0.216	100	250
20" (500mm)	19 31/64"	495 mm	0.312	150	330
25" (625mm)	24 13/32"	620 mm	0.47	230	500
32" (825mm)	32 9/32"	825mm	0.73	360	600

Min cfm and Max cfm are recommended values for optimal performance and can be exceeded in VAV applications.



AXO-C 12 (AXO-C 300) + PERFAIR Performance Data

AXO-C 12 (Imperial), Swirl Effect

AXO-C 300 (Metric)

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)		0.002	0.006	0.010	0.016	0.022	0.031	0.041
5	CFM	27	41	55	68	82	95	109	136
	Pressure Loss (in.w.g.)	0.01	0.02	0.03	0.05	0.07	0.09	0.12	0.181
	NC	< 15	< 15	< 15	17	22	25	29	35
	Throw (ft) - Coanda Effect	1-2-2	1-2-4	2-3-5	2-4-6	3-5-7	3-5-8	4-6-9	5-8-11
	Throw (ft) - No Ceiling Effect	1-1-2	1-2-3	1-2-3	2-3-4	2-4-5	2-4-6	3-5-7	4-6-9
6	CFM	39	59	79	98	118	137		
	Pressure Loss (in.w.g.)	0.02	0.04	0.06	0.1	0.14	0.18		
	NC	< 15	< 15	21	26	31	35		
	Throw (ft) - Coanda Effect	1-2-3	2-3-5	3-4-7	3-6-8	4-7-10	5-8-11		
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-3-5	3-4-6	3-5-8	4-6-9		
8	CFM	70	105	140					
	Pressure Loss (in.w.g.)	0.06	0.1	0.185					
	NC	17	28	37					
	Throw (ft) - Coanda Effect	2-4-6	4-6-9	5-8-11					
	Throw (ft) - No Ceiling Effect	2-3-4	3-4-7	3-6-9					

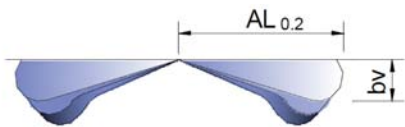
Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

AXO-C 12 (AXO-C 300) + PERFAIR Performance Data (continued)

Damper Correction Factor		100% Open	50% Open	10% Open
12"D (300mm)	Pressure Loss	x 1	x 1.2	x.2.4
	NC	+0.7	+1.1	+2.4

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios		
Throw (ft)	i	Delta T Ratio
4	10	0.046
6	17	0.028
8	23	0.022
10	29	0.017
15	48	-
20	65	-
25	100	-
30	125	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

AXO-C 16 (AXO-C 400) + PERFAIR Performance Data

AXO-C 16 (Imperial) Swirl Effect

AXO-C 400 (Metric)

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
		Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041
6	CFM		59	79	98	118	137	157	196
	Pressure Loss (in.w.g.)		0.009	0.016	0.025	0.035	0.046	0.06	0.092
	NC		< 15	< 15	< 15	< 15	17	21	26
	Throw (ft) - Coanda Effect		1-2-3	2-3-4	2-4-5	3-4-7	3-5-8	4-6-9	4-7-11
	Throw (ft) - No Ceiling Effect		1-2-2	1-2-3	2-3-4	2-3-5	2-4-6	3-4-7	3-5-8
8	CFM	70	105	140	175	209	244	279	349
	Pressure Loss (in.w.g.)	0.013	0.028	0.048	0.074	0.104	0.139	0.18	0.276
	NC	< 15	< 15	16	21	25	29	32	38
	Throw (ft) - Coanda Effect	2-3-4	2-4-6	3-5-8	4-7-10	5-8-12	5-9-14	6-10-16	8-13-19
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-4-6	3-5-7	3-6-9	4-7-10	5-8-12	6-10-15

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

Damper Correction Factor		100% Open	50% Open	10% Open
16" D (400mm)	Pressure Loss	x 1	x 1.2	x 2.3
	NC	+0.8	+1.5	+2.9

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91

$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios		
Throw (ft)	i	Delta T Ratio
4	7	0.052
6	13	0.034
8	18	0.026
10	24	0.019
15	39	-
20	55	-
25	72	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

AXO-C 20 (AXO-C 500) + PERFAIR Performance Data

AXO-C 20 (Imperial) Swirl Effect

AXO-C 500 (Metric)

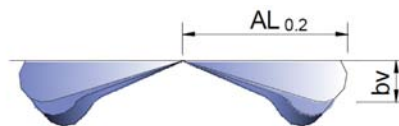
Neck Size (inches)	Neck (fpm) Velocity	400	500	600	700	800	1000	1200
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	.090
6	CFM		98	118	137	157	196	236
	Pressure Loss (in.w.g.)		0.015	0.021	0.028	0.036	0.055	0.079
	NC		< 15	< 15	< 15	< 15	19	24
	Throw (ft) - Coanda Effect		2-3-4	2-3-5	2-4-6	3-5-7	4-6-9	4-7-11
	Throw (ft) - No Ceiling Effect		1-2-3	2-3-4	2-3-5	2-3-5	3-4-7	3-5-8
8	CFM	140	175	209	244	279	349	419
	Pressure Loss (in.w.g.)	0.029	0.045	0.062	0.084	0.108	0.166	0.281
	NC	< 15	17	21	25	28	34	40
	Throw (ft) - Coanda Effect	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-10-16	8-13-19
	Throw (ft) - No Ceiling Effect	2-3-5	2-4-6	3-5-7	3-5-8	4-6-9	5-8-12	6-10-14
10	CFM	218	273	327	382			
	Pressure Loss (in.w.g.)	0.068	0.104	0.147	0.198			
	NC	22	28	32	36			
	Throw (ft) - Coanda Effect	4-6-10	5-8-12	6-10-15	7-11-17			
	Throw (ft) - No Ceiling Effect	3-5-7	4-6-9	4-7-11	5-8-13			

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

Damper Correction Factor		100% Open	50% Open	10% Open
20"D (500mm)	Pressure Loss	x 1	x 1.4	x 4
	NC	+0.8	+2.1	+2.8

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$
 $\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 $AL_{0.2}$ = Distance at which velocity reaches 40 fpm

AXO-C 20 (AXO-C 500) + PERFAIR Performance Data (continued)

Ratios				<p>induced room air = supplied cfm * i</p> <p>induced room air = cfm mixed for given throw</p>
Throw (ft)	i (type A)	i (type B)	Delta T Ratio	
4	6	9	0.082	<p>Delta T (Throw) = Delta T (Supply) * Delta T Ratio</p> <p>Delta T (Supply) = T (Room) - T (Supply)</p> <p>Delta T (Throw) = T (Room) - T (Throw)</p>
6	12	17	0.047	
8	16	24	0.035	
10	20	30	0.028	
15	33	50	0.018	
20	46	73	0.01	
25	58	97		

AXO-C 25 (AXO-C 625) + PERFAIR Performance Data

AXO-C 25 (Imperial) Swirl Effect

AXO-C 625 (Metric)

Neck Size (inches)	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400
		Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	.090
6	CFM		98	118	137	157	196	236	275
	Pressure Loss (in.w.g.)		0.008	0.011	0.015	0.019	0.029	0.041	0.055
	NC		< 15	< 15	< 15	< 15	< 15	18	21
	Throw (ft) - Coanda Effect		1-2-4	2-3-4	2-3-5	2-4-6	3-5-7	4-6-9	4-7-10
	Throw (ft) - No Ceiling Effect		1-2-3	1-2-3	2-3-4	2-3-4	2-4-6	3-4-7	3-5-8
8	CFM	140	175	209	244	279	349	419	489
	Pressure Loss (in.w.g.)	0.015	0.023	0.033	0.044	0.057	0.087	0.124	0.166
	NC	< 15	< 15	16	19	21	26	30	33
	Throw (ft) - Coanda Effect	2-3-5	3-4-7	3-5-8	4-6-9	4-7-10	5-9-13	6-10-16	7-12-18
	Throw (ft) - No Ceiling Effect	2-3-4	2-3-5	2-4-6	3-5-7	3-5-8	4-7-10	5-8-12	6-9-14
10	CFM	218	273	327	382	436	545	654	764
	Pressure Loss (in.w.g.)	0.036	0.055	0.077	0.104	0.133	0.205	0.29	0.39
	NC	16	21	25	28	30	35	40	>40
	Throw (ft) - Coanda Effect	3-5-8	4-7-10	5-8-12	6-10-14	7-11-16	8-14-21	10-16-25	12-19-29
	Throw (ft) - No Ceiling Effect	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-10-15	7-12-19	9-14-22
12	CFM	314	393	471	550	628	785		
	Pressure Loss (in.w.g.)	0.071	0.11	0.155	0.208	0.276	0.345		
	NC	24	28	32	35	38	44		
	Throw (ft) - Coanda Effect	5-8-12	6-10-15	7-12-18	8-14-21	9-15-23	12-19-29		
	Throw (ft) - No Ceiling Effect	4-6-9	4-7-11	5-9-13	6-10-16	7-11-17	9-14-22		

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

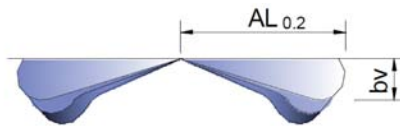
AXO-C 25 (AXO-C 625) + PERFAIR Performance Data (continued)

Damper Correction Factor		100% Open	50% Open	10% Open
25"D (625mm)	Pressure Loss	x 1	x 1.5	x 4.8
	NC	+0.9	+5.8	+7.7

Type B Throw Correction Factor	
Dim	Correction Factor
25"D	0.74

Type B = 50% position 1, 50% position 2

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios			
Throw (ft)	i (type A)	i (type B)	Delta T Ratio
4	5	7	0.115
6	9	14	0.068
8	12	19	0.052
10	16	25	0.04
15	26	42	0.027
20	37	60	0.02
25	47	60	0.016
30	60	100	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)

Delta T (Throw) = T (Room) - T (Throw)

AXO-C 33 (AXO-C 825) + PERFAIR Performance Data

AXO-C 33 (Imperial) Swirl Effect

AXO-C 825 (Metric)

Neck Size	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	.090	.122
12" (300mm)	CFM	314	393	471	550	628	785	942	1100
	Pressure Loss (in.w.g.)	0.027	0.042	0.059	0.079	0.102	0.156	0.221	0.297
	NC	16	21	26	30	33	38	43	47
	Throw (ft) - Coanda Effect	4-6-9	4-7-11	5-9-13	6-10-15	7-12-18	9-15-22	10-18-26	12-20-31
	Throw (ft) - No Ceiling Effect	3-4-7	3-5-8	4-7-10	5-8-12	5-9-13	7-11-16	8-13-20	9-15-23

NC Value based on 10 db room attenuation.

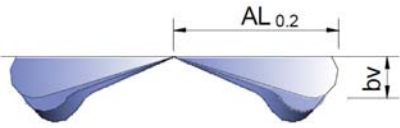
Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

Damper Correction Factor		100% Open	50% Open	10% Open
32"D (825mm)	Pressure Loss	x 1	x 1.7	x 4.5
	NC	+0.9	+4.4	+7.8

Type B Throw Correction Factor	
Dim	Correction Factor
32"D (825mm)	0.74

Type B = 50% position 1, 50% position 2

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios			
Throw (ft)	i (type A)	i (type B)	Delta T Ratio
4	< 5	< 5	0.19
6	6	8	0.11
8	8	12	0.082
10	12	15	0.065
15	18	25	0.044
20	26	36	0.033
25	32	46	0.026
30	41	60	0.021

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

How to Specify AXO-C

Supply and mounting of circular high induction swirl diffuser with individually adjustable radial vanes model AXO-C. Constructed from galvanized steel face panel powder coated in white M9016, with ABS adjustable diffusion vanes featuring airflow straighteners on the back of the vanes. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

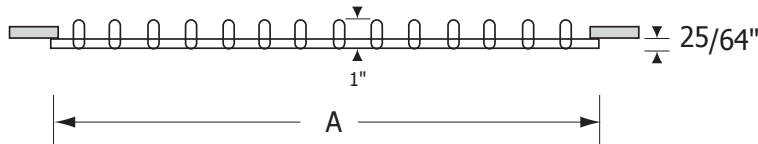
AXO-CY Round Diffuser, Radial Inclined Vanes

Dim	A (Imperial)	A (Metric)	Free Area (sqf)	Min cfm	Max cfm
25" (625mm)	24 13/32"	620 mm	0.47	230	500

Min cfm and Max cfm are recommended values for optimal performance and can be exceeded in VAV applications.



AXO-CY



AXO-CY + PERFAIR Performance Data

AXO-CY 25 (Imperial) Swirl Effect

AXO-CY 625 (Metric)

Neck Size (inches)	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400
	Velocity Pressure (H2O)		.010	.016	.022	.031	.041	.062	.090
6	CFM	79	98	118	137	157	196	236	275
	Pressure Loss (in.w.g.)	0.017	0.026	0.035	0.047	0.061	0.091	0.126	0.188
	NC	< 15	< 15	17	21	24	27	31	37
	Throw (ft) - Coanda Effect	1-2-4	2-3-5	2-3-5	2-4-6	3-4-7	3-8-11	4-6-9	4-7-11
	Throw (ft) - No Ceiling Effect	1-2-3	2-2-4	2-3-4	2-3-5	2-3-5	2-5-9	3-5-7	3-5-8
8	CFM	140	175	209	244	279	349	419	489
	Pressure Loss (in.w.g.)	0.027	0.041	0.054	0.073	0.094	0.146	0.197	0.29
	NC	< 15	18	21	24	27	32	38	44
	Throw (ft) - Coanda Effect	2-4-6	3-4-7	3-5-8	4-6-9	4-7-11	5-9-13	7-11-15	8-13-19
	Throw (ft) - No Ceiling Effect	2-3-5	2-3-5	2-4-6	3-5-7	3-5-8	4-6-10	5-8-12	6-9-14
10	CFM	218	273	327	382	436	545	654	764
	Pressure Loss (in.w.g.)	0.036	0.055	0.077	0.104	0.133	0.205	0.29	0.39
	NC	15	20	23	26	29	33	37	40
	Throw (ft) - Coanda Effect	3-5-8	4-7-10	5-8-12	6-10-14	7-11-16	8-14-21	10-16-25	12-19-29
	Throw (ft) - No Ceiling Effect	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-10-15	7-12-19	9-14-22
12	CFM	314	393	471	550	628	785		
	Pressure Loss (in.w.g.)	0.063	0.095	0.121	0.166	0.216	0.325		
	NC	22	27	31	34	38	44		
	Throw (ft) - Coanda Effect	5-8-11	6-10-15	8-13-19	8-14-21	9-15-23	12-19-29		
	Throw (ft) - No Ceiling Effect	4-6-9	4-7-11	6-9-14	6-10-15	7-11-17	9-14-22		

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

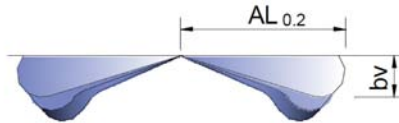
AXO-CY + PERFAIR Performance Data (continued)

Damper Correction Factor		100% Open	50% Open	10% Open
25"D (625mm)	Pressure Loss	x 1	x 1.5	x 4.8
	NC	+ 0.8	+5.1	+7

Type B Throw Correction Factor	
Dim	Correction Factor
25"D	0.74

Type B = 50% position 1, 50% position 2

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.056	.95
-10	.064	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion

KI = Throw Correction Factor

$AL_{0.2}$ = Distance at which velocity reaches 40 fpm

Ratios			
Throw (ft)	i (type A)	i (type B)	Delta T Ratio
4	5	7	0.115
6	9	14	0.068
8	12	19	0.052
10	16	25	0.04
15	26	42	0.027
20	37	60	0.02
25	47	60	0.016
30	60	100	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)

Delta T (Throw) = T (Room) - T (Throw)

How to Specify AXO-CY

Supply and mounting of circular high induction swirl diffuser with individually adjustable radial inclined vanes model AXO-CY, dimension 25 inches or 625 mm. Constructed from galvanized steel face panel powder coated in white M9016, with ABS adjustable diffusion vanes featuring airflow straighteners on the back of the vanes. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

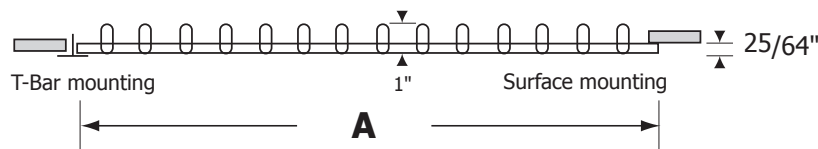
AXO-S Square Diffuser, Radial Vanes



AXO-S
by MADEL®

List Size	A	Free Area (sqf)	CFM Min	CFM Max
12 (299)	11 37/64" (294 mm)	0.10	50	160
16 (400)	15 3/4" (395 mm)	0.216	100	250
20 (500)	19 3/4" (495 mm)	0.312	150	330
24 (605)	23 5/8" (600 mm)	0.48	230	550
32 (800)	31 1/2" (795 mm)	0.73	360	600

Min cfm and Max cfm are recommended values for optimal performance and can be exceeded in VAV applications.



AXO-S 12 + PERFAIR Performance Data

12" x 12" Face (Imperial), Swirl Effect

299 mm x 299 mm Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H ₂ O)		0.002	0.006	0.010	0.016	0.022	0.031	0.041
5	CFM	27	41	55	68	82	95	109	136
	Pressure Loss (in.w.g.)	0.01	0.02	0.03	0.05	0.07	0.09	0.12	0.181
	NC	< 15	< 15	< 15	17	22	25	29	35
	Throw (ft) - Coanda Effect	1-2-2	1-2-4	2-3-5	2-4-6	3-5-7	3-5-8	4-6-9	5-8-11
	Throw (ft) - No Ceiling Effect	1-1-2	1-2-3	1-2-3	2-3-4	2-4-5	2-4-6	3-5-7	4-6-9
6	CFM	39	59	79	98	118	137		
	Pressure Loss (in.w.g.)	0.02	0.04	0.06	0.1	0.14	0.18		
	NC	< 15	< 15	21	26	31	35		
	Throw (ft) - Coanda Effect	1-2-3	2-3-5	3-4-7	3-6-8	4-7-10	5-8-11		
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-3-5	3-4-6	3-5-8	4-6-9		
8	CFM	70	105	140					
	Pressure Loss (in.w.g.)	0.06	0.1	0.185					
	NC	17	28	37					
	Throw (ft) - Coanda Effect	2-4-6	4-6-9	5-8-11					
	Throw (ft) - No Ceiling Effect	2-3-4	3-4-7	3-6-9					

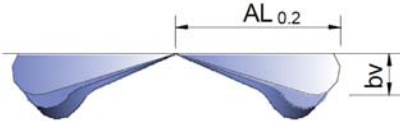
Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

AXO-S 12 + PERFAIR Performance Data (continued)

Damper Correction Factor		100% Open	50% Open	10% Open
12"x12" (299mm)	Pressure Loss	x1	x 1.2	x 2.4
	NC	+0.07	+1.1	+2.4

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios		
Throw (ft)	i	Delta T Ratio
4	10	0.046
6	17	0.028
8	23	0.022
10	29	0.017
15	48	-
20	65	-
25	100	-
30	125	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

AXO-S 16 (AXO-S 400) + PERFAIR Performance Data

16" x 16" Face (Imperial), Swirl Effect

400 mm x 400 mm Face (Metric)

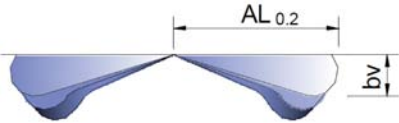
Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
		Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041
6	CFM		59	79	98	118	137	157	196
	Pressure Loss (in.w.g.)		0.009	0.015	0.025	0.035	0.046	0.06	0.092
	NC		< 15	< 15	< 15	< 15	17	21	26
	Throw (ft) - Coanda Effect		1-2-3	2-3-4	2-4-5	3-4-7	3-5-8	4-6-9	4-7-11
	Throw (ft) - No Ceiling Effect		1-2-2	1-2-3	2-3-4	2-3-5	2-4-6	3-4-7	3-5-8
8	CFM	70	105	140	175	209	244	279	349
	Pressure Loss (in.w.g.)	0.01	0.028	0.048	0.074	0.104	0.139	0.18	0.276
	NC	< 15	< 15	16	22	25	29	32	38
	Throw (ft) - Coanda Effect	2-3-4	2-4-6	3-5-8	4-7-10	5-8-12	5-9-14	6-10-16	8-13-19
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-4-6	3-5-7	3-6-9	4-7-10	5-8-12	6-10-15

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

Damper Correction Factor		100% Open	50% Open	10% Open
16"x16" (605mm)	Pressure Loss	x 1	x 1.2	x 2.3
	NC	+0.8	+1.5	+2.9

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios		
Throw (ft)	i	Delta T Ratio
4	7	0.052
6	13	0.034
8	18	0.026
10	24	0.019
15	39	-
20	55	-
25	72	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

AXO-S 20 (AXO-S 500) + PERFAIR Performance Data

20" x 20" Face (Imperial), Swirl Effect

500 mm x 500 mm Face (Metric)

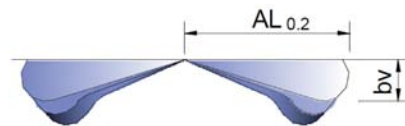
Neck Size (inches)	Neck (fpm) Velocity	400	500	600	700	800	1000	1200
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	.090
6	CFM		98	118	137	157	196	236
	Pressure Loss (in.w.g.)		0.015	0.021	0.028	0.036	0.055	0.079
	NC		< 15	< 15	< 15	< 15	19	24
	Throw (ft) - Coanda Effect		2-3-4	2-3-5	2-4-6	3-5-7	4-6-9	4-7-11
	Throw (ft) - No Ceiling Effect		1-2-3	2-3-4	2-3-5	2-3-5	3-4-7	3-5-8
8	CFM	140	175	209	244	279	349	419
	Pressure Loss (in.w.g.)	0.029	0.045	0.062	0.084	0.108	0.166	0.281
	NC	< 15	17	21	25	28	34	40
	Throw (ft) - Coanda Effect	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-10-16	8-13-19
	Throw (ft) - No Ceiling Effect	2-3-5	2-4-6	3-5-7	3-5-8	4-6-9	5-8-12	6-10-14
10	CFM	218	273	327	382			
	Pressure Loss (in.w.g.)	0.068	0.104	0.147	0.198			
	NC	22	28	32	36			
	Throw (ft) - Coanda Effect	4-6-10	5-8-12	6-10-15	7-11-17			
	Throw (ft) - No Ceiling Effect	3-5-7	4-6-9	4-7-11	5-8-13			

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

Damper Correction Factor		100% Open	50% Open	10% Open
20"x20" (500mm)	Pressure Loss	x 1	x 1.4	x 4
	NC	+0.8	+2.1	+2.8

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$
 $\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

AXO-S 20 (AXO-S 500) + PERFAIR Performance Data (continued)

Ratios			
Throw (ft)	i (type A)	i (type B)	Delta T Ratio
4	6	9	0.082
6	12	17	0.047
8	16	24	0.035
10	20	30	0.028
15	33	50	0.018
20	46	73	0.01
25	58	97	

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

AXO-S 24 + PERFAIR Performance Data

24" x 24" Face (Imperial), Swirl Effect

605mm x 605mm Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	300	400	500	600	700	800	1000	1200	1400	1600
	Velocity Pressure (H2O)	0.006	.010	.016	.022	.031	.041	.062	.090	.122	.160
6	CFM			98	118	137	157	196	236	275	314
	Pressure Loss (in.w.g.)			0.008	0.011	0.015	0.019	0.029	0.041	0.055	0.071
	NC			< 15	< 15	< 15	< 15	15	19	22	25
	Throw (ft) - Coanda Effect			1-2-4	2-3-4	2-3-5	2-4-6	3-5-7	4-6-9	4-7-10	5-8-12
	Throw (ft) - No Ceiling Effect			1-2-3	1-2-3	2-3-4	2-3-4	2-4-6	3-4-7	3-5-8	4-6-9
8	CFM	105	140	175	209	244	279	349	419	489	559
	Pressure Loss (in.w.g.)	0.010	0.015	0.023	0.033	0.044	0.057	0.087	0.124	0.166	0.215
	NC	< 15	< 15	< 15	16	20	22	27	31	35	38
	Throw (ft) - Coanda Effect	2-3-4	2-3-5	3-4-7	3-5-8	4-6-9	4-7-10	5-9-13	6-10-16	7-12-18	8-14-21
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-3-5	2-4-6	3-5-7	3-5-8	4-7-10	5-8-12	6-9-14	6-10-16
10	CFM	164	218	273	327	382	436	545	654		
	Pressure Loss (in.w.g.)	0.020	0.036	0.055	0.077	0.104	0.133	0.205	0.29		
	NC	< 15	17	22	26	28	32	37	40		
	Throw (ft) - Coanda Effect	3-4-6	3-5-8	4-7-10	5-8-12	6-10-14	7-11-16	8-14-21	10-16-25		
	Throw (ft) - No Ceiling Effect	2-3-5	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-10-15	7-12-19		
12	CFM	236	314	393	471	550	628				
	Pressure Loss (in.w.g.)	0.040	0.071	0.11	0.155	0.208	0.246				
	NC	19	25	30	34	37	40				
	Throw (ft) - Coanda Effect	4-6-9	5-8-12	6-10-15	7-12-18	8-14-21	9-15-23				
	Throw (ft) - No Ceiling Effect	3-5-7	4-6-9	4-7-11	5-9-13	6-10-16	7-11-17				

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

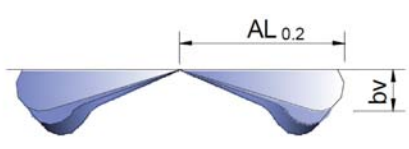
Damper Correction Factor		100% Open	50% Open	10% Open
12"x12" (299mm)	Pressure Loss	x1	x 1.2	x 2.4
	NC	+0.07	+1.1	+2.4
24"x24" (605mm)	Pressure Loss	x 1	x 1.5	x 4.8
	NC	+0.9	+5.8	+7.7

Type B Throw Correction Factor	
Dim	Correction Factor
24" x 24" (605mm)	0.74

Type B = 50% position 1, 50% position 2

AXO-S + PERFAIR Performance Data (continued)

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios					
Throw (ft)	i 12"	Delta T Ratio 12"	i 24" (A)	i 24" (B)	Delta T Ratio 24"
4	10	0.046	7	7	0.115
6	17	0.028	9	14	0.068
8	23	0.022	11	19	0.052
10	29	0.017	16	25	0.04
15	48	-	26	42	0.027
20	65	-	37	60	0.02
25	100	-	47	80	0.016
30	125	-	61	100	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

AXO-S 32 (AXO-S 800) + PERFAIR Performance Data

32" x 32" Face (Imperial), Swirl Effect

800 mm x 800 mm Face (Metric)

Neck Size	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	.090	.122
12" (300mm)	CFM	314	393	471	550	628	785	942	1100
	Pressure Loss (in.w.g.)	0.027	0.042	0.059	0.079	0.102	0.156	0.221	0.297
	NC	18	24	29	33	37	43	48	> 50
	Throw (ft) - Coanda Effect	4-6-9	4-7-11	5-9-13	6-10-15	7-12-18	9-15-22	11-17-26	12-20-31
	Throw (ft) - No Ceiling Effect	3-4-7	3-5-8	4-7-10	5-8-12	5-9-13	7-11-16	8-13-20	9-15-23

NC Value based on 10 db room attenuation.

Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

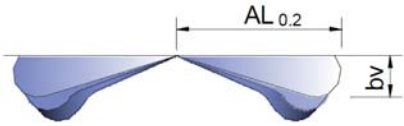
Damper Correction Factor		100% Open	50% Open	10% Open
32"x32" (800mm)	Pressure Loss	x 1	x 1.7	x 4.5
	NC	+0.9	+4.4	+7.8

Type B Throw Correction Factor	
Dim	Correction Factor
32"x32" (800mm)	0.74

Type B = 50% position 1, 50% position 2

AXO-S 32 (AXO-S 800) + PERFAIR Performance Data (continued)

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios			
Throw (ft)	i (type A)	i (type B)	Delta T Ratio
4	< 5	< 5	0.19
6	6	8	0.11
8	8	12	0.082
10	12	15	0.065
15	18	25	0.044
20	26	36	0.033
25	32	16	0.026
30	41	60	0.021

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

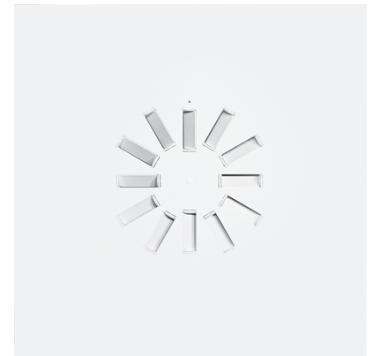
How to Specify AXO-S

Supply and mounting of square high induction swirl diffuser model AXO-S, with individually adjustable radial vanes. Constructed from galvanized steel face panel powder coated in white M9016, with ABS adjustable diffusion vanes featuring airflow straighteners on the back of the vanes. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

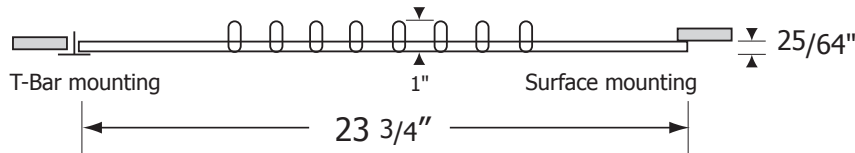
AXO-S300 Square Diffuser, Radial Vanes, Very Low CFM

Dim A	Free Area (sqf)	CFM Min	CFM Max
24"x24" (605mm)	0.10	50	160

Min cfm and Max cfm are recommended values for optimal performance and can be exceeded in VAV applications.



AXO-S300



AXO-S300 + PERFAIR Performance Data

24" x 24" Face (Imperial), Swirl Effect

605mm x 605mm Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)		0.002	0.006	0.010	0.016	0.022	0.031	0.041
5	CFM	27	41	55	68	82	95	109	136
	Pressure Loss (in.w.g.)	0.01	0.02	0.03	0.05	0.07	0.09	0.12	0.181
	NC	< 15	< 15	< 15	17	22	25	29	35
	Throw (ft) - Coanda Effect	1-2-2	1-2-4	2-3-5	2-4-6	3-5-7	3-5-8	4-6-9	5-8-11
	Throw (ft) - No Ceiling Effect	1-1-2	1-2-3	1-2-3	2-3-4	2-4-5	2-4-6	3-5-7	4-6-9
6	CFM	39	59	79	98	118	137		
	Pressure Loss (in.w.g.)	0.02	0.04	0.06	0.1	0.14	0.18		
	NC	< 15	< 15	21	26	31	35		
	Throw (ft) - Coanda Effect	1-2-3	2-3-5	3-4-7	3-6-8	4-7-10	5-8-11		
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-3-5	3-4-6	3-5-8	4-6-9		
8	CFM	70	105	140					
	Pressure Loss (in.w.g.)	0.06	0.1	0.185					
	NC	17	28	37					
	Throw (ft) - Coanda Effect	2-4-6	4-6-9	5-8-11					
	Throw (ft) - No Ceiling Effect	2-3-4	3-4-7	3-6-9					

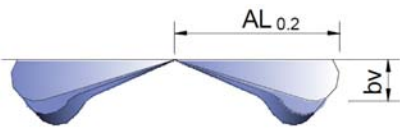
Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

Damper Correction Factor		100% Open	50% Open	10% Open
24"x24" (605mm)	Pressure Loss	x1	x 1.2	x 2.4
	NC	+0.7	+1.1	+2.4

AXO-S300 + PERFAIR Performance Data (continued)

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios		
Throw (ft)	i	Delta T Ratio
4	10	0.046
6	17	0.028
8	23	0.022
10	29	0.017
15	48	-
20	65	-
25	100	-
30	125	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

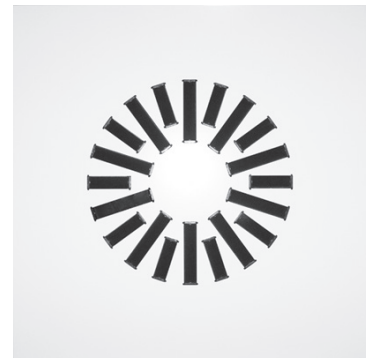
How to Specify AXO-S300

Supply and mounting of square high induction swirl diffuser model AXO-S300, with individually adjustable radial vanes for lower CFM. Constructed from galvanized steel face panel powder coated in white M9016, with ABS adjustable diffusion vanes featuring airflow straighteners on the back of the vanes. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

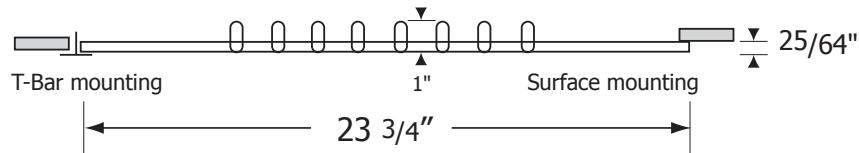
AXO-S400 Square Diffuser, Radial Vanes, Low CFM

Dim A	Free Area (sqf)	CFM Min	CFM Max
24"x24" (605mm)	0.22	100	250

Min cfm and Max cfm are recommended values for optimal performance and can be exceeded in VAV applications.



AXO-S400



AXO-S400 + PERFAIR Performance Data

24" x 24" Face (Imperial), Swirl Effect

605mm x 605mm Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H ₂ O)		0.002	0.006	0.01	0.016	0.022	0.031	0.041
6	CFM		59	79	98	118	137	157	196
	Pressure Loss (in.w.g.)		0.009	0.015	0.025	0.035	0.046	0.06	0.092
	NC		< 15	< 15	< 15	< 15	17	21	26
	Throw (ft) - Coanda Effect		1-2-3	2-3-4	2-4-5	3-4-7	3-5-8	4-6-9	4-7-11
	Throw (ft) - No Ceiling Effect		1-2-2	1-2-3	2-3-4	2-3-5	2-4-6	3-4-7	3-5-8
8	CFM	70	105	140	175	209	244	279	349
	Pressure Loss (in.w.g.)	0.01	0.028	0.048	0.074	0.104	0.139	0.18	0.276
	NC	< 15	< 15	16	22	25	29	32	> 40
	Throw (ft) - Coanda Effect	2-3-4	2-4-6	3-5-8	4-7-10	5-8-12	5-9-14	6-10-16	8-13-19
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-4-6	3-5-7	3-6-9	4-7-10	5-8-12	6-10-15
10	CFM	109	164	218	273	327			
	Pressure Loss (in.w.g.)	0.03	0.065	0.110	0.173	0.244			
	NC	< 15	22	28	34	> 40			
	Throw (ft) - Coanda Effect	2-4-6	4-6-9	5-8-12	6-10-15	7-12-18			
	Throw (ft) - No Ceiling Effect	2-3-5	3-5-7	4-6-9	5-8-11	5-9-14			

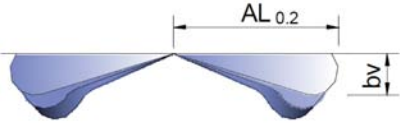
Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

Damper Correction Factor		100% Open	50% Open	10% Open
24"x24" (605mm)	Pressure Loss	x 1	x 1.2	x 2.3
	NC	+0.8	+1.5	+2.9

AXO-S400 + PERFAIR Performance Data (continued)

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios		
Throw (ft)	i	Delta T Ratio
4	7	0.052
6	13	0.034
8	18	0.026
10	24	0.019
15	39	-
20	55	-
25	72	-
30	90	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

How to Specify AXO-S400

Supply and mounting of square high induction swirl diffuser model AXO-S400, with individually adjustable radial vanes for lower CFM. Constructed from galvanized steel face panel powder coated in white M9016, with ABS adjustable diffusion vanes featuring airflow straighteners on the back of the vanes. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

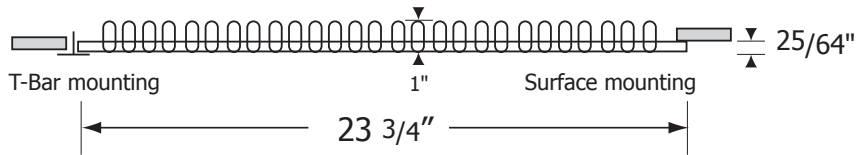
AXO-SX Square Diffuser, Radial Vanes, High CFM

Dim A	Free Area (sqf)	CFM Min	CFM Max
24"x24" (605mm)	0.62	300	550

Min cfm and Max cfm are recommended values for optimal performance and can be exceeded in VAV applications.



AXO-SX



AXO-SX + PERFAIR Performance Data

24" x 24" Face (Imperial), Swirl Effect

605mm x 605mm Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400	1600
	Velocity Pressure (H2O)		.010	.016	.022	.031	.041	.062	0.09	0.122
6	CFM			118	137	157	196	236	275	314
	Pressure Loss (in.w.g.)			0.007	0.01	0.013	0.019	0.027	0.037	0.047
	NC			< 15	< 15	< 15	< 15	< 15	16	20
	Throw (ft) - Coanda Effect			2-3-4	2-3-4	2-3-4	2-4-5	3-4-7	3-5-8	4-6-9
	Throw (ft) - No Ceiling Effect			1-2-3	1-2-3	1-2-3	2-3-4	2-3-5	2-4-6	3-4-7
8	CFM	140	175	209	244	279	349	419	489	559
	Pressure Loss (in.w.g.)	0.013	0.015	0.022	0.029	0.038	0.058	0.082	0.11	0.142
	NC	< 15	< 15	< 15	< 15	17	23	28	32	36
	Throw (ft) - Coanda Effect	2-3-4	2-3-5	2-4-6	3-4-7	3-5-8	4-6-10	5-8-12	5-9-14	6-10-16
	Throw (ft) - No Ceiling Effect	1-2-3	1-2-4	2-3-4	2-3-5	2-4-6	3-5-7	4-6-9	4-7-10	5-8-12
10	CFM	218	273	327	382	436	545	654	764	873
	Pressure Loss (in.w.g.)	0.023	0.036	0.051	0.069	0.088	0.135	0.191	0.258	0.332
	NC	< 15	16	21	25	29	36	41	45	47
	Throw (ft) - Coanda Effect	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-10-15	7-12-18	9-14-21	10-16-24
	Throw (ft) - No Ceiling Effect	2-3-5	2-4-6	3-5-7	3-5-8	4-6-9	5-8-11	5-9-14	6-11-16	7-12-18
12	CFM	314	393	471	550	628	785			
	Pressure Loss (in.w.g.)	0.047	0.072	0.102	0.138	0.177	0.271			
	NC	20	27	31	36	40	46			
	Throw (ft) - Coanda Effect	4-6-9	4-7-11	5-9-13	6-10-15	7-12-18	9-14-22			
	Throw (ft) - No Ceiling Effect	3-4-4	3-5-8	4-6-10	5-8-12	5-9-13	7-11-16			

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

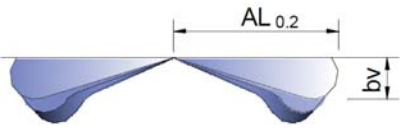
AXO-SX + PERFAIR Performance Data (continued)

Damper Correction Factor		100% Open	50% Open	10% Open
24"x24" (605mm)	Pressure Loss	x1	x1.5	x4.8
	NC	+0.8	+4.8	+5.2

Type B Throw Correction Factor	
Dim	Correction Factor
24"x24"	0.6

Type B = 50% position 1, 50% position 2

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	0.36	1
-2	.041	.985
-4	.046	.975
-6	.058	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios			
Throw (ft)	i (type A)	i (type B)	Delta T Ratio
4	< 5	9	1.3
6	8	18	0.08
8	12	26	0.06
10	16	34	0.047
15	28	55	0.03
20	43	82	0.023
25	56	115	0.018
30	78	145	0.015

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

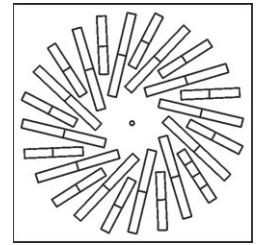
Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

How to Specify AXO-SX

Supply and mounting of square high induction swirl diffuser model AXO-SX, with individually adjustable radial vanes for higher CFM. Constructed from galvanized steel face panel powder coated in white M9016, with ABS adjustable diffusion vanes featuring airflow straighteners on the back of the vanes. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

AXO-SY Square Diffuser, Radial Incline Vanes



AXO-SY

Dim A	Free Area (sqf)	CFM Min	CFM Max
24"x24" (605mm)	0.47	230	500

Min cfm and Max cfm are recommended values for optimal performance and can be exceeded in VAV applications.

AXO-SY + PERFAIR Performance Data

24" x 24" Face (Imperial), Swirl Effect

605mm x 605mm Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400
	Velocity Pressure (H2O)		.010	.016	.022	.031	.041	.062	0.09
6	CFM		98	118	137	157	196	236	275
	Pressure Loss (in.w.g.)		0.008	0.011	0.015	0.019	0.03	0.042	0.057
	NC		< 15	< 15	< 15	< 15	< 15	17	21
	Throw (ft) - Coanda Effect		1-2-3	2-3-4	2-3-5	2-4-5	3-4-7	3-5-8	4-6-10
	Throw (ft) - No Ceiling Effect		1-2-3	1-2-3	1-2-4	2-3-4	2-3-5	2-4-6	3-5-7
8	CFM	140	175	209	244	279	349	419	489
	Pressure Loss (in.w.g.)	0.016	0.024	0.034	0.045	0.058	0.089	0.127	0.17
	NC	< 15	< 15	< 15	18	21	26	31	35
	Throw (ft) - Coanda Effect	2-3-5	2-4-6	3-5-7	3-6-8	4-6-10	5-8-12	6-10-15	7-11-17
	Throw (ft) - No Ceiling Effect	1-2-4	2-3-5	2-4-5	3-4-6	3-5-7	4-6-9	4-7-11	5-8-13
10	CFM	218	273	327	382	436	545	654	764
	Pressure Loss (in.w.g.)	0.036	0.056	0.079	0.106	0.137	0.209	0.296	0.399
	NC	15	20	25	29	32	38	> 40	> 40
	Throw (ft) - Coanda Effect	3-5-8	4-6-10	5-8-11	5-9-13	6-10-15	8-13-19	9-15-23	11-18-27
	Throw (ft) - No Ceiling Effect	2-4-6	3-5-7	3-6-9	4-7-10	5-8-11	6-9-14	7-11-17	8-13-20
12	CFM	314	393	471	550	628	785		
	Pressure Loss (in.w.g.)	0.073	0.112	0.158	0.213	0.273	0.342		
	NC	24	30	34	38	>40	>40		
	Throw (ft) - Coanda Effect	4-7-11	5-9-14	7-11-16	8-13-19	9-15-23	12-19-29		
	Throw (ft) - No Ceiling Effect	3-5-8	4-7-10	5-8-12	6-10-14	7-10-16	9-14-22		

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

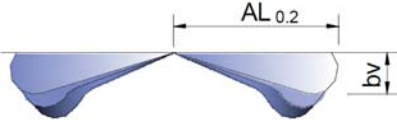
AXO-SY + PERFAIR or BOXSTAR Performance Data (continued)

Damper Correction Factor		100% Open	50% Open	10% Open
24"x24" (605mm)	Pressure Loss	x1	x1.5	x4.8
	NC	+0.9	+5.1	+7

Type B Throw Correction Factor	
Dim	Correction Factor
24"x24"	0.75

Type B = 50% position 1, 50% position 2

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	0.36	1
-2	.041	.985
-4	.046	.975
-6	.058	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios			
Throw (ft)	i (type A)	i (type B)	Delta T Ratio
4	5	7	0.125
6	9	13	0.075
8	13	19	0.057
10	17	27	0.045
15	26	45	0.03
20	39	65	0.023
25	50	86	0.018
30	62	115	0.014

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

How to Specify AXO-SY

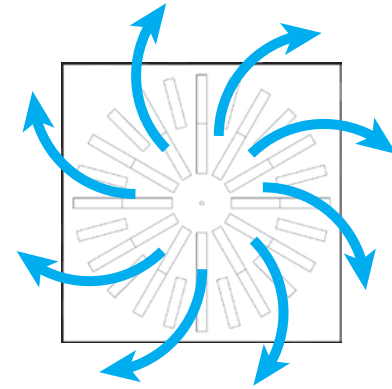
Supply and mounting of square high induction swirl diffuser model AXO-SY, with individually adjustable radial inclined vanes. Constructed from galvanized steel face panel powder coated in white M9016, with ABS adjustable diffusion vanes featuring airflow straighteners on the back of the vanes. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

AXO-S 24 and AXO-C 25 Adjustment and Patterns

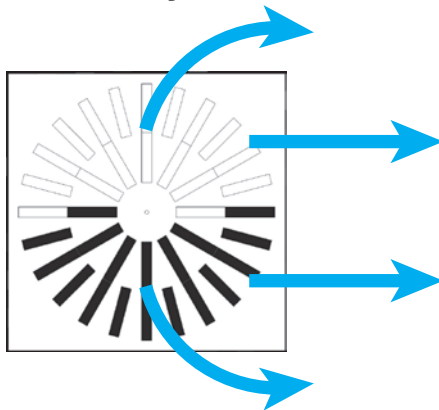
Throw Correction Factors

Adjustment	Ka	Throw' = Ka x Throw
1-Way	1.4	
2-Way	1.2	
3-Way	1.1	

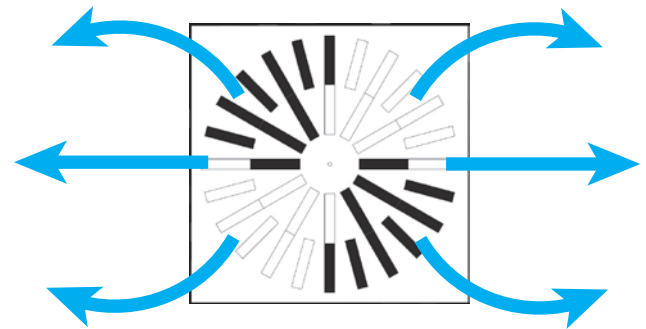
Swirl (standard)



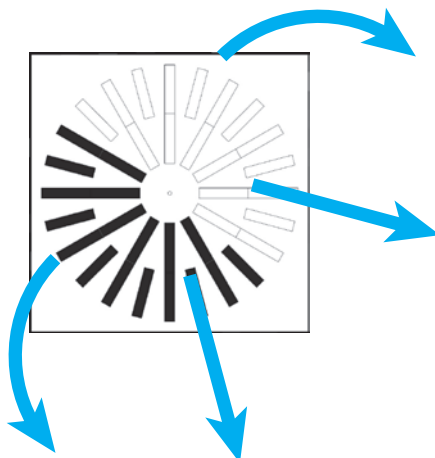
1 Way



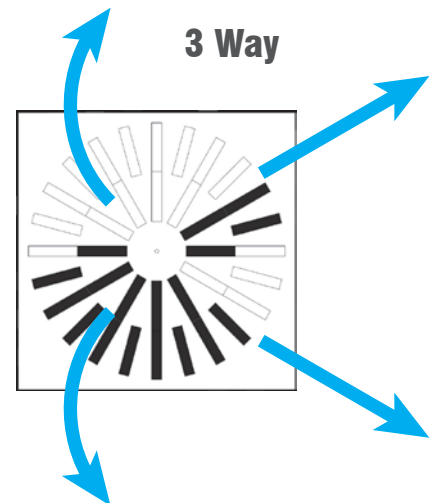
2 Way Opposed



2 Way Corner



3 Way

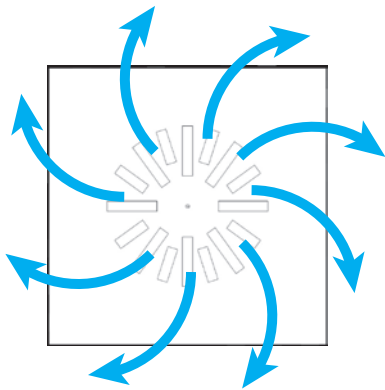


AXO-S400 Adjustment and Patterns

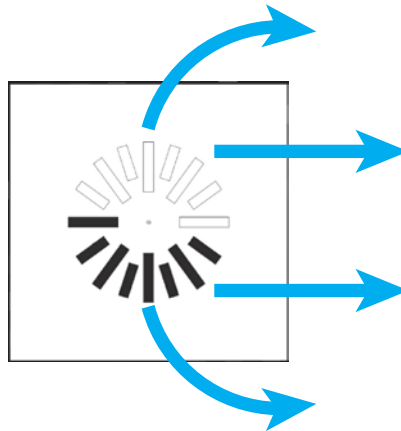
Throw Correction Factors

Adjustment	Ka	Throw' = Ka x Throw
1-Way	1.4	
2-Way	1.2	
3-Way	1.1	

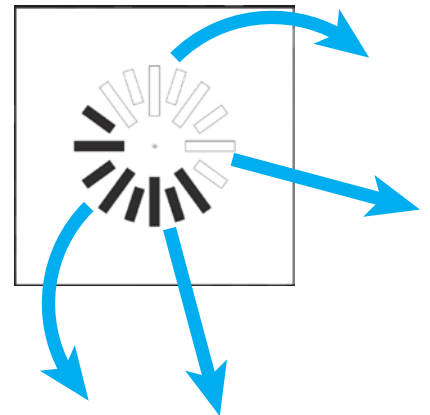
Swirl (standard)



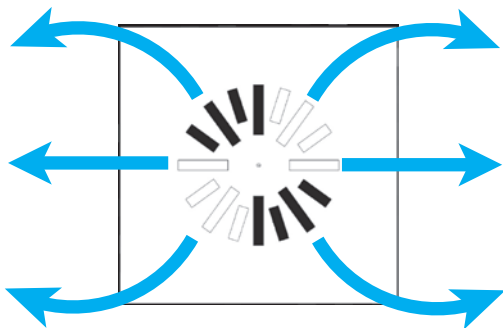
1 Way



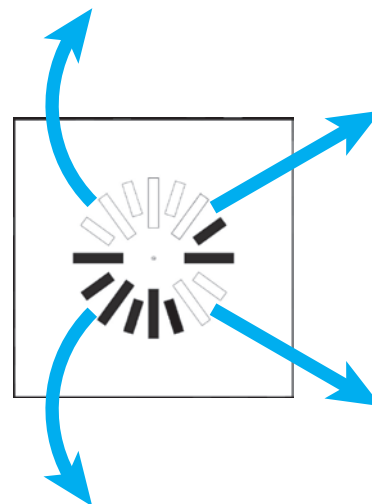
2 Way Corner



2 Way Opposed



3 Way

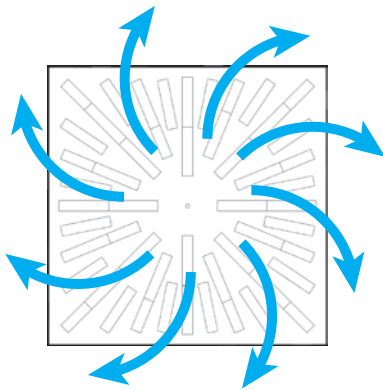


AXO-SX 24 Adjustment and Patterns

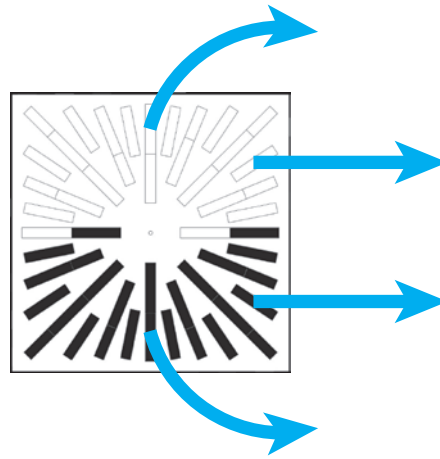
Throw Correction Factors

Adjustment	Ka	Throw' = Ka x Throw
1-Way	1.4	
2-Way	1.2	
3-Way	1.1	

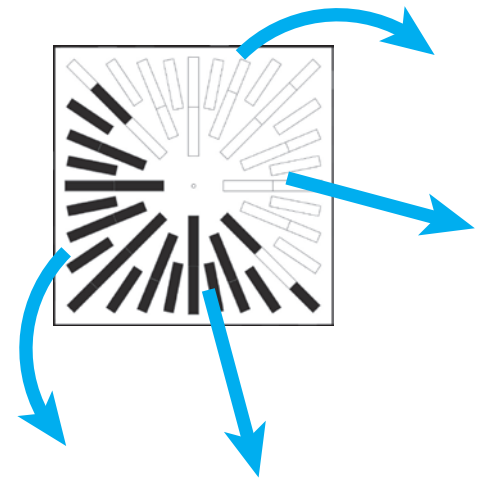
Swirl (standard)



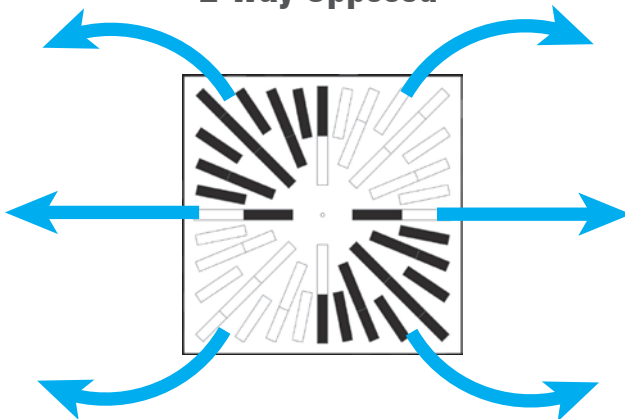
1 Way



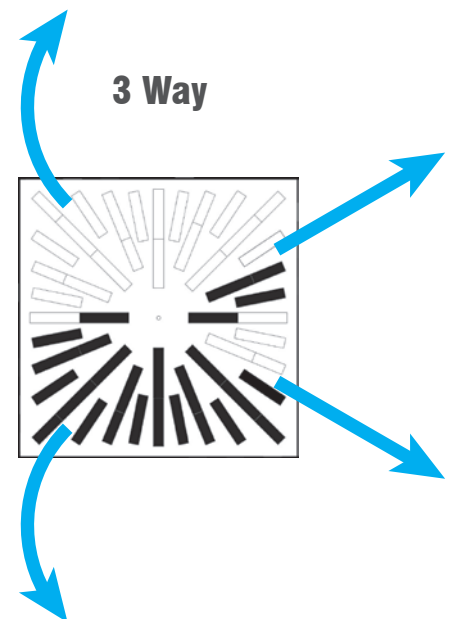
2 Way Corner



2 Way Opposed



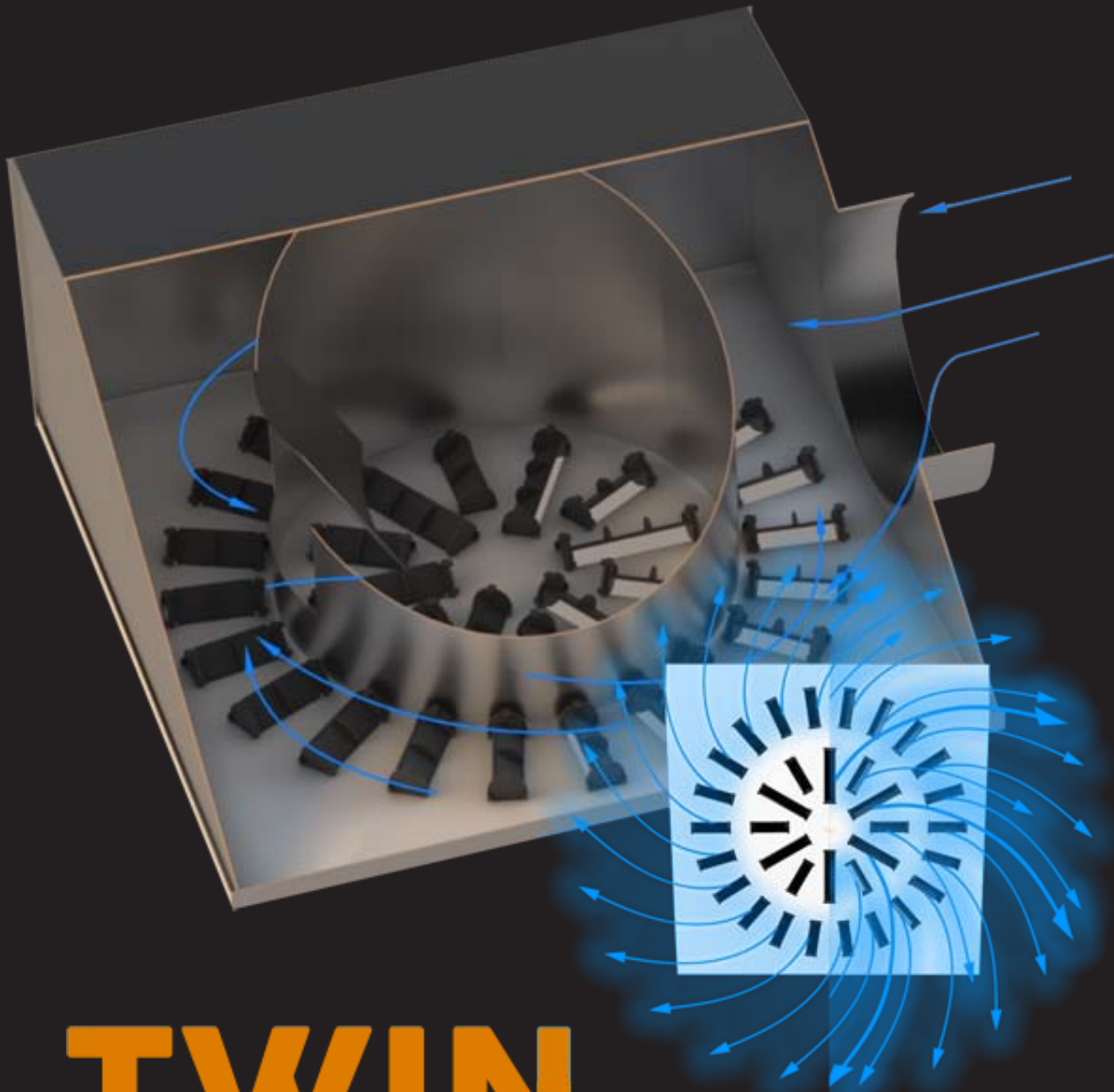
3 Way



How to Order AXO Series

AXO	-S	-AB	24	+ PERFAIR-SS	24	10
				Plenum		
				Face Dimension		
					Neck Diameter	6" 8", 10" or 12" D
					Face Dimension	Match Product Face
					PERFAIR-CS	Round, Side Entry
					PERFAIR-CT	Round, Top Entry
					PERFAIR-SS	Square, Side Entry
					PERFAIR-ST	Square, Top Entry
					12	12" x 12" or 12" Diameter
					16	16" x 16" or 16" Diameter
					20	20" x 20" or 20" Diameter
					24	24" x 24" Square Face
					25	25" Diameter Face
					32	32" X 32"
					33	33" Diameter Face
				Induction Vanes Color	default	Black Induction Vanes
					AB	White Induction Vanes
				Model	C	Round, Straight Vanes
					CY	Round, Inclined Vanes
					S300	Square, Very Low CFM
					S400	Square, Low CFM
					S	Square, Straight Vanes
					SX	Square, High CFM
					SY	Square, Inclined Vanes
					ALU-C	Alum, Round, Straight Vanes
					ALU-CY	Alum, Round, Inclined Vanes
					ALU-S300	Alum, Square, Very Low CFM
					ALU-S400	Alum, Square, Low CFM
					ALU-S	Alum, Square, Straight Vanes
					ALU-SX	Alum, Square, High CFM
					ALU-SY	Alum, Square, Inclined Vanes





TWIN DUAL FLOW








AXO-TWIN

Dual Flow High Induction Swirl Diffuser for VAV Systems

EFFECTIVE  TM

AXO-TWIN SERIES

Dual Flow High Induction Swirl Diffuser for VAV Systems

-  More constant throw, velocity and NC in VAV applications
-  Provides optimal performance for air volumes between 70 and 320 cfm
-  Prevents cold air dropping and hot air stratification at lower cfm, while preserving thermal comfort at higher cfm
-  Maintains a higher induction ratio even at lower cfm
-  High induction causes rapid reduction of air velocity and temperature difference for improved thermal comfort and energy efficiency
-  Individually adjustable high induction mixing vanes available in black or white
-  Only requires 12" height in the ceiling to be installed



AXO-TWIN
by **MADEL®**

**Patent
Pending**

AXO-TWIN Dual Flow High Induction Swirl Diffuser by EffectiV HVAC™ and MADEL® is designed to achieve greater air mixing, thermal comfort and energy efficiency in VAV installations. AXO-TWIN provides an optimal performance for air volumes varying between 70 cfm and 320 cfm.

Thanks to the innovative design of its dual chamber plenum, AXO-TWIN diffuser self-adjusts in order to let the air pass through more or fewer induction vanes based on the volume of air, resulting in a more stable performance in VAV applications. At low cfm, the air is diffused through the outer circle of induction vanes. At high cfm, the inner chamber opens and the air is diffused through the entire surface of the diffuser. The adjustment is completely autonomous and doesn't require any special configuration, controls nor electricity.

The direct outcome is a more stable throw, air velocity, induction ratio and NC in VAV applications.

When designing a system, engineers select diffusers based on maximum air volume, trying to reach the occupied zone with limited air velocity to properly mix the room air while avoiding thermal discomfort. When VAV systems supply lower air volumes, however, the diffusion performance is seriously affected. At lower velocity, cold air tends to drop from the ceiling and hot air tends to stick to the ceiling. Hot and cold spots are created in the room and the air may fail to reach to occupied zone. Energy consumption and occupants' comfort are automatically impacted. The lack of air mixing may also increase the concentration of contaminants – CO₂, gases, viruses and other airborne particles – accumulated in the room's air.

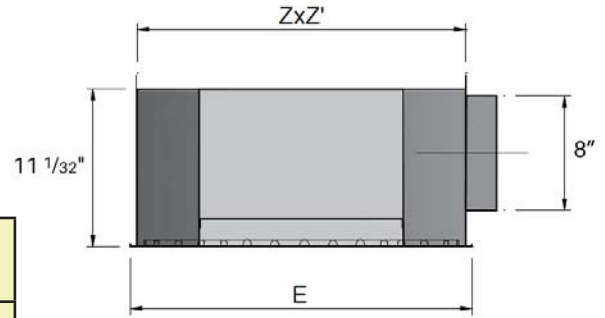
With AXO-TWIN, we limit the diffuser's free area in order to ensure enough discharge velocity to maintain a higher discharge velocity, a higher induction ratio and more stable throw distances at low cfm. The ultimate benefits are: significantly increased thermal comfort, energy efficiency, and improved ventilation for indoor air quality.

The high induction vanes and pressurization of the air in the plenum create a very even swirl diffusion pattern by default. The vanes are individually adjustable to make it possible to adapt the airflow.

AXO-TWIN diffusers allow an optimal performance despite flow variations of up to 75% while keeping the air stream stable. For optimal conditions, AXO-TWIN diffusers may be used in ceilings 8.5 up to 13 feet (2.6 up to 4 meters) high, with a temperature differential up to 27°F (15°C).

Dimensions

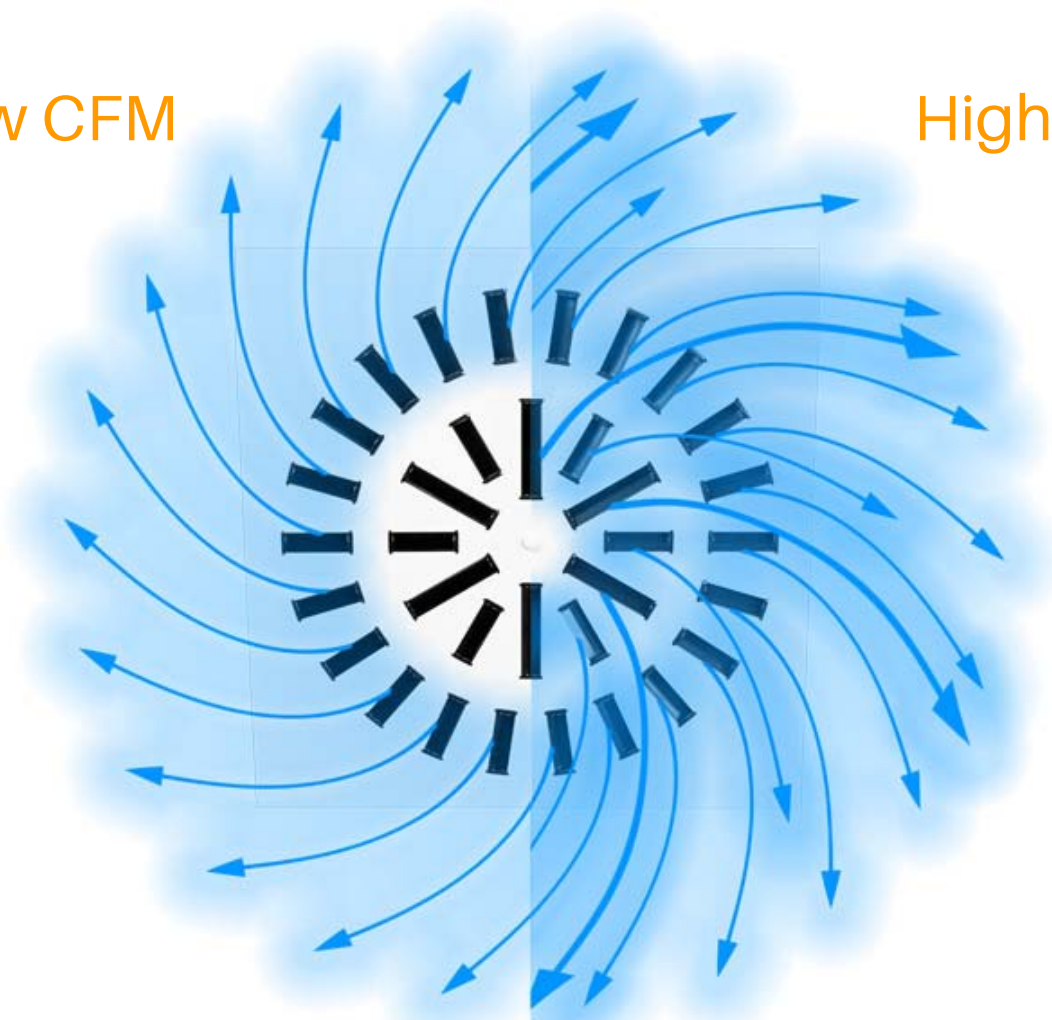
Model	E	Z	Z	Min cfm	Max cfm
AXO-TWIN	23 3/4"	22 43/64"	22 23/64"	70	320



Note: Min cfm and Max cfm are recommended values for optimal performance and can be exceeded

Low CFM

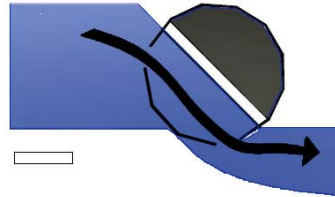
High CFM



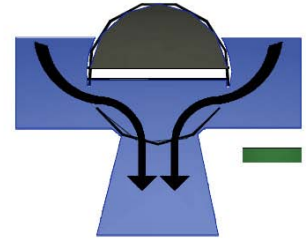
DUAL FLOW

AXO Vanes Positioning

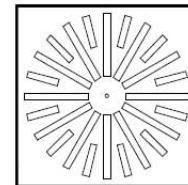
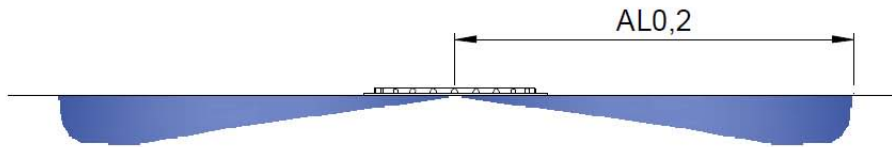
HORIZONTAL SUPPLY.
POSITION 1.



VERTICAL SUPPLY.
POSITION 2.

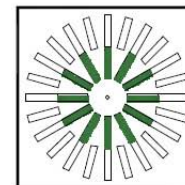
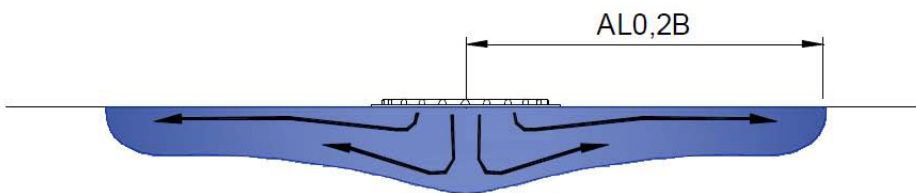


TYPE A. 100% POSITION 1.



POSITION 1.

TYPE B. 50% POSITION 1 AND 50% POSITION 2.



POSITION 2.
POSITION 1.

$AL_{0.2}$ = Distance at which velocity reaches 40 fpm

Type B Throw Correction Factor	
Dim	Correction Factor
24" x 24" (605mm)	0.75

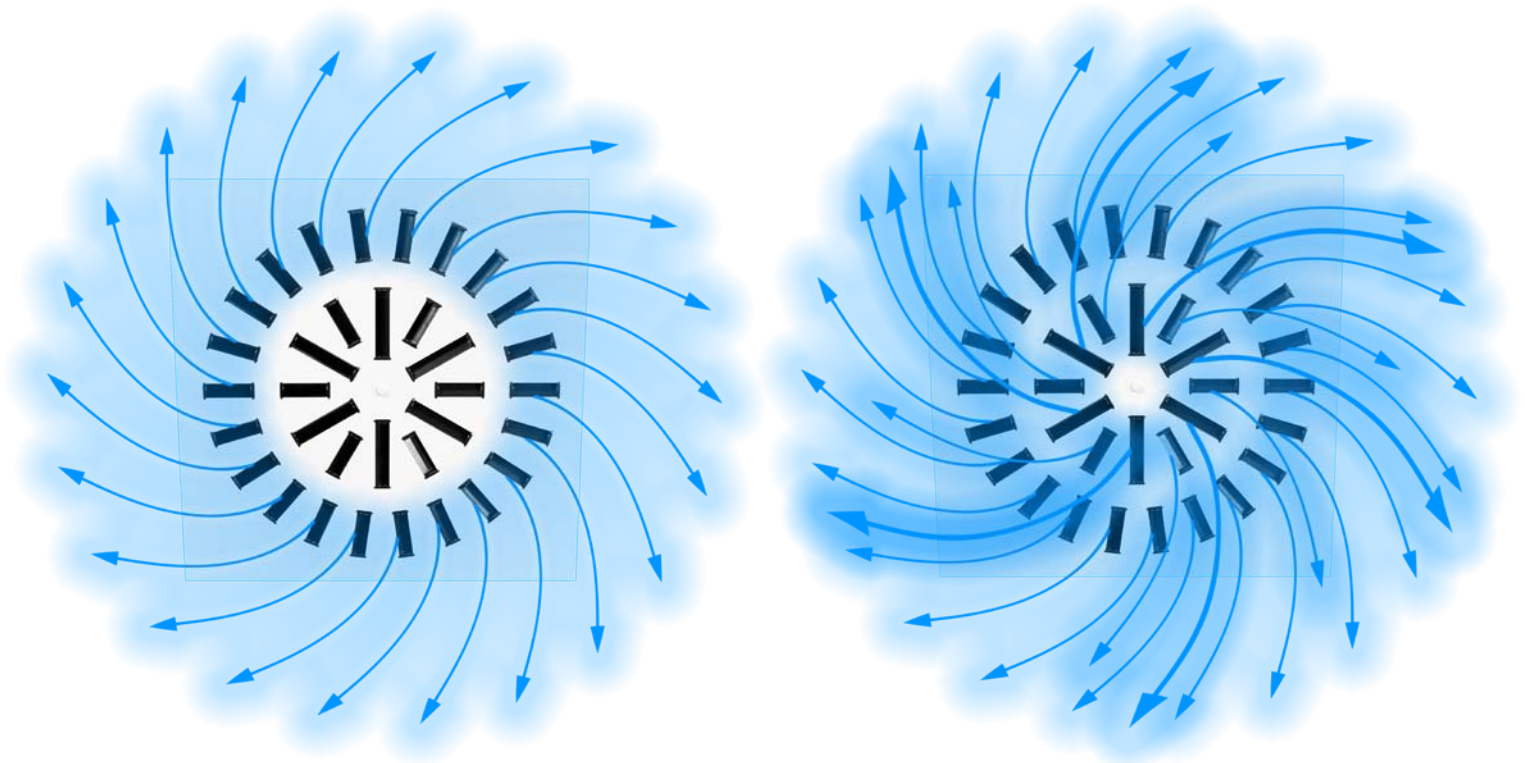
Type B = 50% position 1, 50% position 2

AXO-TWIN Performance Data

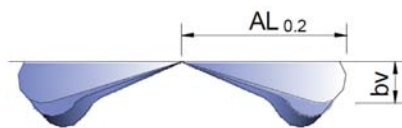
Dimension	Neck (fpm) Velocity	200	300	400	500	600	700	800	900	1000	1200
24" x 24"	CFM	70	105	140	175	209	244	279	314	349	419
	Pressure Loss (in.w.g.)	0.013	0.027	0.046	0.069	0.094	0.126	0.16	0.199	0.24	0.335
	NC	< 15	< 15	< 15	< 20	< 20	< 25	< 30	< 35	> 40	> 40
	Throw (ft) - Coanda Effect	2-3-4	2-4-5	3-4-7	3-5-8	4-6-9	4-7-10	4-7-11	5-8-12	5-9-13	6-10-15
	Throw (ft) - No Ceiling	1-2-3	2-3-4	2-3-5	2-4-6	3-4-7	3-5-8	3-6-8	4-6-9	4-7-10	5-8-11
	Induction Ratio - Coanda	8 - 13	11 - 16	15 - 22	17 - 26	20 - 29	22 - 32	24 - 35	26 - 39	28 - 42	32 - 48
	Induction R. - No Ceiling	6 - 9	8 - 13	11 - 16	13 - 18	15 - 22	17 - 26	17 - 26	20 - 29	22 - 32	24 - 35

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.
- Induction ratio values are for Type A and Type B diffusion patterns, in order.



Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios			
Throw (ft)	i Type A	i Type B	Delta T Ratio
4	8	13	0.051
6	13	18	0.036
8	17	26	0.03
10	22	32	0.026
15	32	48	0.019
20	43	70	0.015
25	54	85	0.01
30	66	108	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

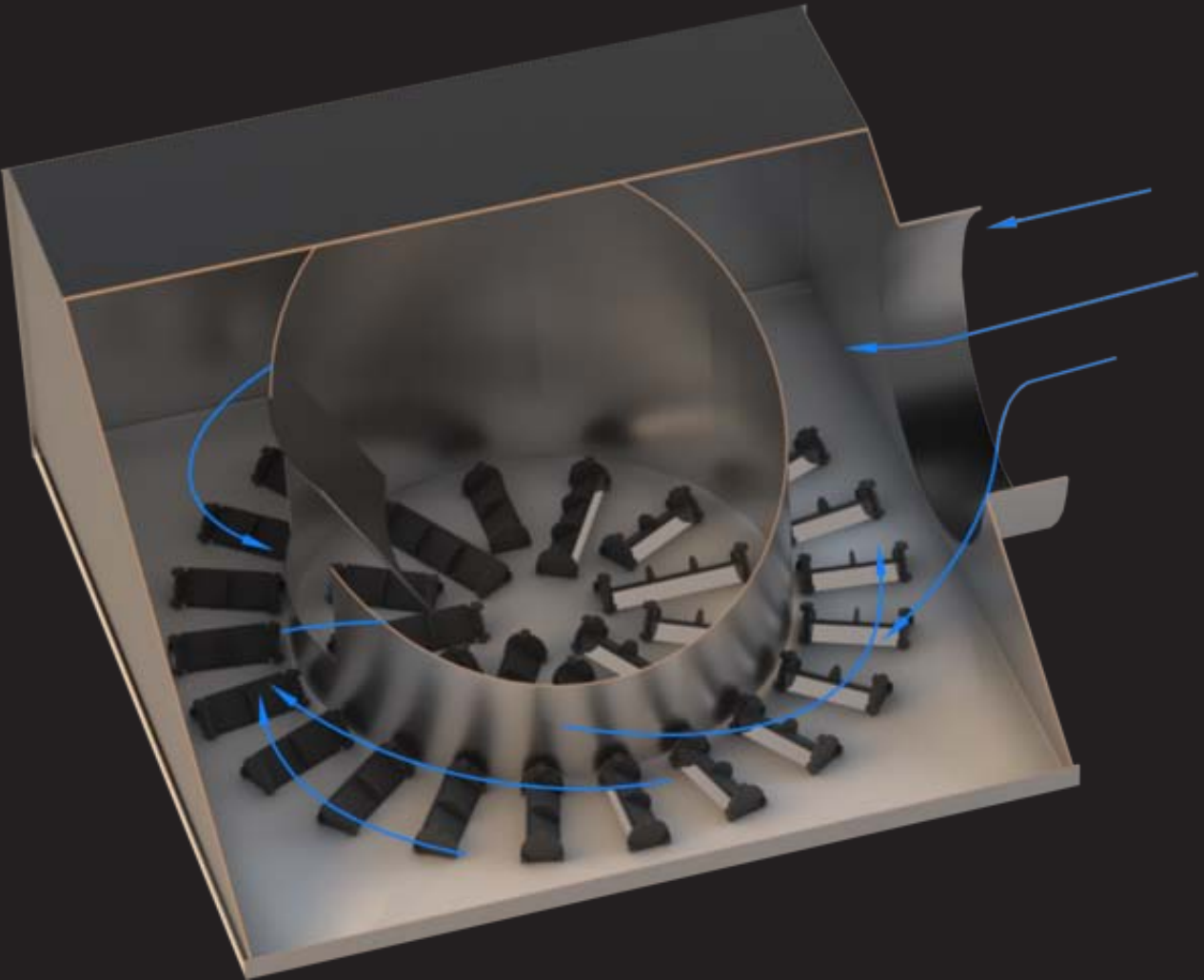
Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

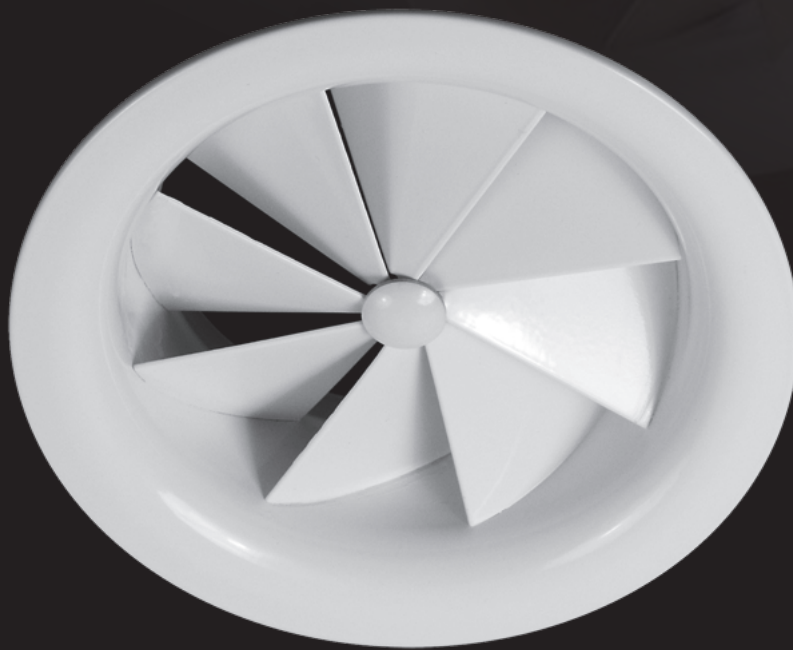
How to Specify AXO-TWIN

Supply and mounting of dual flow high induction swirl diffuser for VAV systems, model AXO-TWIN, with individually adjustable radial vanes. Diffuser must self-adapt to increased cfm in order to let the air pass through more induction vanes, resulting in a more stable performance in VAV applications. Adjustment shall be automatic, without the need for controls nor electricity. Dual-chamber plenum made of galvanized steel, with a polymeric membrane allowing the air to access the inner chamber of the plenum for higher cfm. The diffuser is provided with a gasket on the back to ensure airtight contact with the plenum. Face panel made in galvanized steel powder coated in white M9016. ABS adjustable diffusion vanes shall have airflow straighteners on the back of the vanes. By EffectiV HVAC / MADEL.

How to Order AXO-TWIN Series

AXO-TWIN	-AB	24	/M9016
	Finish		M9016 Powder Coated RAL 9016
			RAL Other RAL color
	Dimension		24 23.75" x 23.75"
	Induction Vanes Color		AB White Induction Vanes
			AN Black Induction Vanes





AXP
Aluminum Round Swirl Diffuser









AXP SERIES

Aluminum Round Swirl Diffuser



AXP
by MADEL®

-  Fixed swirl diffusion pattern
-  Commercial and industrial applications
-  Heavy-gauge spun aluminum construction
-  Duct mounted or drywall mounted
-  Ideal for heating, cooling and VAV applications
-  Available in imperial and metric standard dimensions

AXP series round swirl diffusers by EffectiV HVAC™ and MADEL® are designed to supply air in heating, air conditioning and ventilation applications, in premises with ceilings 8.5 up to 13 feet (2.6 up to 4 meters) high and with temperature differential up to 22°F (12°C). They are suitable for multiple types of commercial buildings.

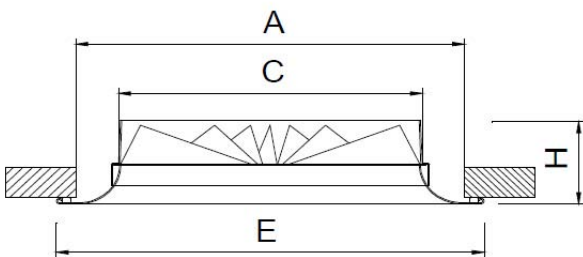
Their round shape together with the helical design of their vanes cause a stable swirl diffusion of the air stream, obtaining a high induction rate and reducing the stratification.

They can be mounted in drywall ceilings or directly on exposed duct.

Neck Diameter	Free Area (sqf)	Min cfm	Max cfm
5" (125 mm)	0.065	32	79
6" (160 mm)	0.097	47	129
8" (200 mm)	0.143	71	159
10" (250 mm)	0.207	103	229
12" (315 mm)	0.413	203	347

Note: if higher cfm is required, use oversized face with PLRR plenum

AXP Dimensions



	Duct Diameter	A	C	E	H
Imperial	5"	7 9/16"	4 27/32"	9 1/16"	2 61/64"
	6"	8 15/16"	6 7/32"	10 5/16"	3 61/64"
	8"	10 5/8"	7 51/64"	12 1/64"	2 61/64"
	10"	12 19/32"	9 49/64"	13 31/32"	2 61/64"
	12"	15 5/64"	12 21/64"	16 29/64"	4 11/32"
Metric	125 mm	192	123	230	75
	160 mm	227	158	262	75
	200 mm	270	198	305	75
	250 mm	320	248	355	75
	315 mm	383	313	418	85

Some Applications



Great for cooling and ventilation



Closed drywall ceilings or open ceilings with exposed spiral duct



Offices and Meeting Rooms



Restaurants, Bars, Hotels, Stores



VAV Applications



Comfort-critical applications



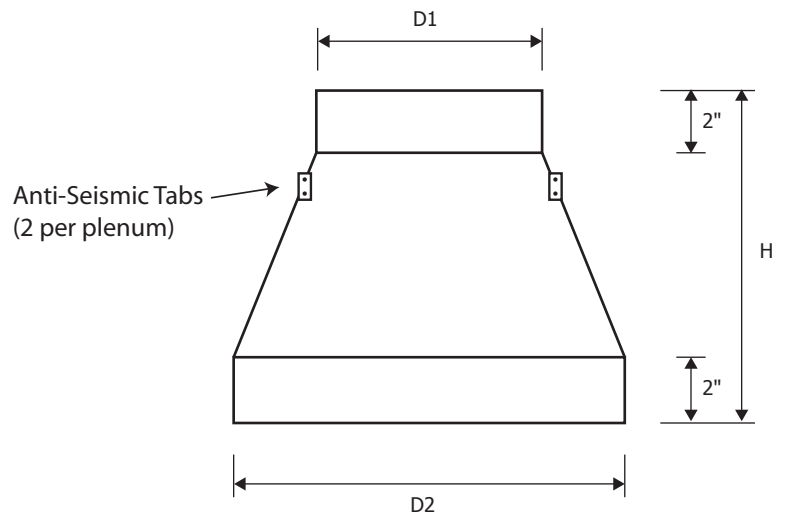
Commercial and Industrial



PLRR Plenum

Optional plenum used to equalize the air (specify with EQ air equalizing grid option), to use an oversized face with a given duct diameter or to add a special damper to AXP diffusers.

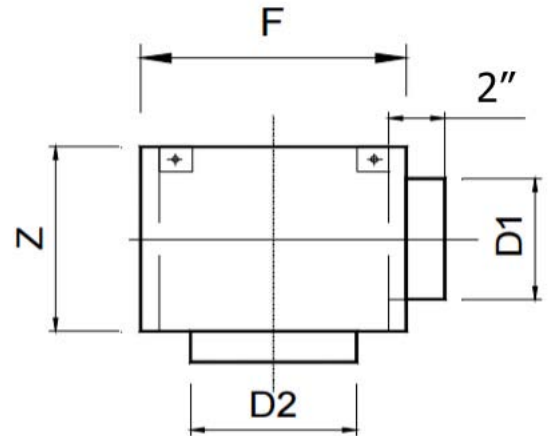
Model	Duct	D1	D2	H
PLRR 0504	4"	3 7/8	5	6
PLRR 0505	5"	4 7/8	5	6
PLRR 0605	5"	4 7/8	6 3/8	6
PLRR 0606	6"	5 7/8	6 3/8	6
PLRR 0805	5"	4 7/8	8	8
PLRR 0806	6"	5 7/8	8	8
PLRR 0808	8"	7 7/8	8	8
PLRR 1006	6"	5 7/8	10	8
PLRR 1008	8"	7 7/8	10	8
PLRR 1010	10"	9 7/8	10	8
PLRR 1208	8"	7 7/8	12 3/8	10
PLRR 1210	10"	9 7/8	12 3/8	10
PLRR 1212	10"	9 7/8	12 3/8	10



PLXP Plenum

Optional plenum with side connection used when space in the ceiling is limited, when acoustical performance is important or to add a special damper to AXP diffusers.

Model	Duct	D1	D2	F	Z
PLXP 05	4"	3 7/8	5	8	6
PLXP 06	5"	4 7/8	6 19/64	10	7
PLXP 08	6"	5 7/8	8	12	10
PLXP 10	8"	7 7/8	10	15	11
PLXP 12	10"	9 7/8	12 13/32	19	14



AXP Performance Data

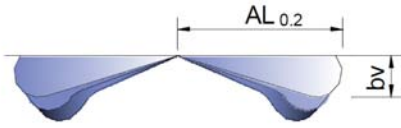
Neck Size	Neck (fpm) Velocity	200	300	400	500	600	700	800
	Velocity Pressure (H2O)	.002	.006	.010	.016	.022	.031	.040
5" (125mm)	CFM	27	41	55	68	82	95	109
	Pressure Loss (in.w.g.)	0.016	0.039	0.075	0.119	0.161	0.241	0.361
	NC	< 15	< 15	18	26	32	37	40
	Throw (ft) - Coanda Effect	3-4-7	4-6-10	5-8-12	6-10-15	7-11-17	8-13-19	9-14-22
	Throw (ft) - No Ceiling Effect	2-3-5	3-5-7	4-6-9	4-7-11	5-8-13	6-10-15	7-11-16
6" (160mm)	CFM	43	65	87	108	130	152	173
	Pressure Loss (in.w.g.)	0.021	0.053	0.099	0.16	0.239	0.335	0.446
	NC	< 15	< 15	18	25	30	35	39
	Throw (ft) - Coanda Effect	3-5-8	5-7-11	6-9-14	7-11-17	8-13-20	9-15-22	10-16-24
	Throw (ft) - No Ceiling Effect	2-4-6	3-6-8	4-7-11	5-8-13	6-10-15	7-11-17	7-12-18
8" (200mm)	CFM	70	105	140	175	209	244	279
	Pressure Loss (in.w.g.)	0.025	0.061	0.114	0.187	0.275	0.386	0.517
	NC	< 15	20	27	33	37	41	45
	Throw (ft) - Coanda Effect	3-6-9	5-8-12	6-10-15	7-12-18	8-14-21	9-16-23	10-17-26
	Throw (ft) - No Ceiling Effect	3-4-7	4-6-9	5-7-11	5-9-13	6-10-15	7-12-17	8-13-19
10" (250mm)	CFM	109	164	218	273	327	382	436
	Pressure Loss (in.w.g.)	0.029	0.071	0.132	0.178	0.32	0.451	0.601
	NC	< 15	22	29	34	39	42	45
	Throw (ft) - Coanda Effect	4-6-9	5-8-13	6-10-16	8-13-19	9-15-22	10-16-25	11-18-27
	Throw (ft) - No Ceiling Effect	3-5-7	4-6-9	5-8-12	6-9-14	7-11-16	7-12-19	8-14-21
12" (315mm)	CFM	168	252	335	419	503	587	671
	Pressure Loss (in.w.g.)	0.031	0.075	0.141	0.229	0.343	0.481	0.645
	NC	< 15	21	29	35	41	45	> 45
	Throw (ft) - Coanda Effect	3-6-8	5-8-12	6-10-15	7-12-17	8-13-20	9-15-23	10-17-25
	Throw (ft) - No Ceiling Effect	3-4-6	3-6-9	4-7-11	5-9-13	6-10-15	7-11-17	8-13-19

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

AXP Performance Data (continued)

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	0.040	1
-2	0.046	0.955
-4	0.053	0.92
-6	0.059	0.89
-8	0.065	0.875
-10	0.075	0.855
-12	0.086	0.835
-15	0.1	0.82
-18	0.12	0.815



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Induction Ratio					
Throw (ft)	5"D 125mm	6"D 160mm	8"D 200mm	10"D 250mm	12"D 315mm
4	8	7	6	5	5
6	14	13	11	10	8
8	21	19	16	14	13
10	28	26	21	18	16
15	47	43	35	32	27
20	71	64	52	47	41
25	92	85	71	64	53
30	125	120	91	81	72

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Temperature Difference Ratio					
Throw (ft)	5"D 125mm	6"D 160mm	8"D 200mm	10"D 250mm	12"D 315mm
4	0.045	0.06	0.072	0.088	0.12
6	0.03	0.042	0.045	0.059	0.08
8	0.023	0.032	0.036	0.046	0.064
10	0.019	0.027	0.029	0.038	0.051
15	0.01	0.018	0.022	0.027	0.037
20		0.011	0.017	0.021	0.028
25			0.01	0.018	0.024
30				0.012	0.02

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

How to Specify AXP

Supply and mounting of fixed air pattern round swirl diffuser AXP, constructed from aluminum and powder coated in white M9016. By EffectiV HVAC / MADEL.

How to Order AXP Series

AXP	-EQ	08	+ PLRR-EQ 0806			
OPTIONAL PLENUM						
PLRR						
PLXP						
		DIMENSION	Imperial		Metric	
		05	5"D	125	125 mm	
		06	6"D	160	160 mm	
		08	8"D	200	200 mm	
		10	10"D	250	250 mm	
		12	12"D	315	315 mm	
OPTIONS		EQ	Air Equalizing Grid (Perforated Plate)			



BWC
Adjustable Steel Ventilation Valves







BWC SERIES

Steel Adjustable Round Ventilation Valves



BWC-N

-  Ideal for residential applications
-  Rotate core clockwise or counter-clockwise to adjust airflow
-  Higher quality than plastic
-  Comes with gasket to avoid air leaks

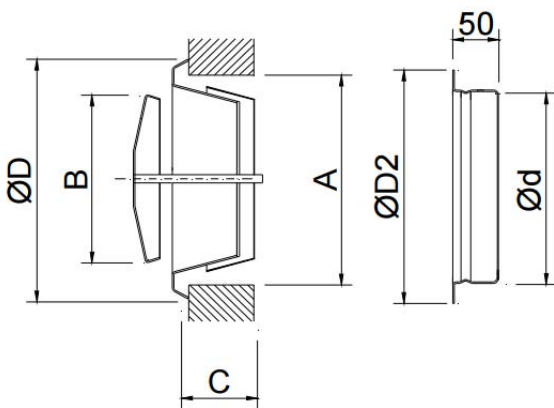
BWC series valves are designed for the air supply or air exhaust in air conditioning, ventilation or heating installations.

Especially suitable for air exhaustion in washrooms and for ventilation installation in houses, apartments, offices, schools and hospitals.

It is mounted in walls or on duct. BWC valves allow for high airflow pass obtaining good results in sound pressure performance. Flow is easily adjusted by turning the central part of the valve.

Neck Diameter	BWC-N	
	Min cfm	Max cfm
4" (100 mm)	6	88
5" (125 mm)	12	129
6" (150 mm)	12	147
8" (200 mm)	18	259

BWC-N Dimensions



Duct Diameter	A	B	C	Ød	ØD2	ØD
4"	4.09"	2.95"	1.57"	3.9"	4.92"	5.39"
5"	5.08"	3.9"	1.81"	4.88"	5.91"	6.46"
6"	6.65"	5.08"	2.13"	5.9"	6.91"	7.75"
8"	8.23"	6.18"	2.48"	7.83"	8.85"	9.76"

How to Specify BWC

Supply and mounting of circular valve with adjustable core NWC-N for extract or air supply with mounting neck series BWC constructed from galvanized steel and powder coated in white RAL9016, by Effectiv HVAC.

How to Order BWC Series

BWC	-N	04			
			Imperial		Metric
		Neck Diameter	04	4"D	100 100 mm
			05	5"D	125 125 mm
			06	6"D	150 150 mm
			08	8"D	200 200 mm
			-N	Supply and Return	



DCG

Adjustable Aluminum Round Diffusers









EFFECTIVE  TM

DCG SERIES

Aluminum Adjustable Round Diffusers



DCG
by **MADEL®**

-  Adjust core up and down to move from horizontal to vertical airflow
-  Architecturally appealing lines and finish
-  Choice of manual adjustment, thermodynamic or actuator controlled
-  Ideal for heating and cooling applications with high ceilings
-  Heavy-gauge spun aluminum construction
-  Large cone profile allows for real vertical flow
-  Duct mounted or drywall mounted
-  Available in imperial and metric dimensions

Neck Diameter	Free Area (sqf)	Min cfm	Max cfm
6" (160 mm)	0.215	125	240
8" (200 mm)	0.338	200	390
10" (250 mm)	0.527	310	470
12" (315 mm)	0.839	490	950
14" (355 mm)	1.035	610	1280
16" (400 mm)	1.345	795	1610
18" (450 mm)	1.711	920	1560
20" (500 mm)	2.110	1110	1860

DCG Aluminum Adjustable Round Diffusers by EffectiV HVAC™ and MADEL® are recommended for heating, ventilating, and cooling applications. DCG diffusers provide a 360° air diffusion pattern and excellent performance in VAV systems.

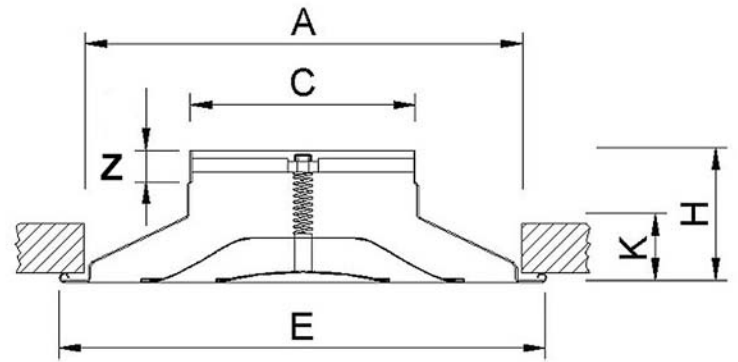
Full adjustability is possible by rotating the inner core clockwise or counter-clockwise to move the cones up or down, changing from horizontal projection to vertical projection in accordance with the supply air temperature. DCG diffusers provide great performance in temperature differentials up to 22°F (12°C) and are suitable for premises with ceilings 8.5 ft (2.6 m) and higher.

Available with manual or automatic adjustment of the airflow for optimized comfort in heating and air conditioning.

Original design by Lievore, Altherr & Molina for Madel.



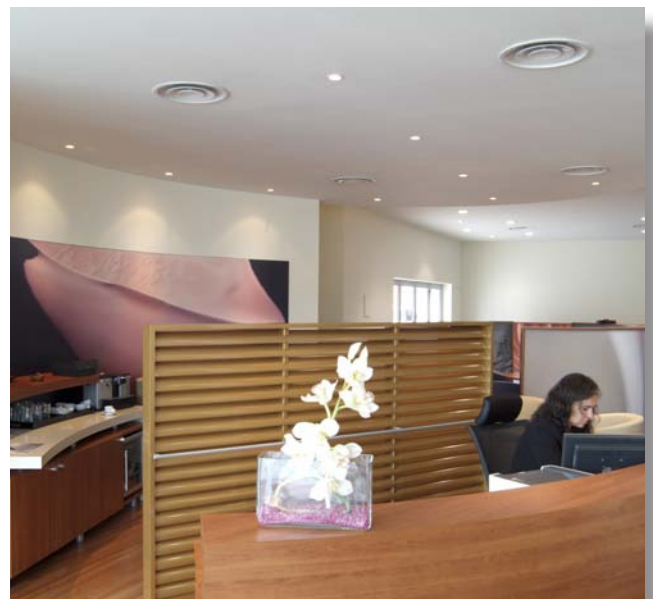
DCG Dimensions



	Duct Diameter	A	C	E	H	K	Z
Imperial	6"	11 59/64	5 3/4	13 5/16	4 15/16	1 47/64	1
	8"	15 5/32	7 3/4	16 47/64	4 17/32	2 9/32	1
	10"	18 17/64	9 3/4	19 3/8	4 31/64	2 1/4	1
	12"	22 13/64	11 3/4	23 17/64	6 19/32	3 5/32	1
	14"	24 13/16	13 29/32	26 1/16	5 33/64	3 17/64	1
	16"	24 13/16	15 19/32	26 1/16	5 5/32	2 59/64	1
	18"	31 5/32	17 19/32	32 3/4	6 13/16	4 11/64	1
	20"	31 5/32	19 9/16	32 3/4	6 27/64	3 13/16	1
Metric	160 mm	303	157	331	101	44	25
	200 mm	385	197	425	115	58	25
	250 mm	464	247	492	114	57	25
	315 mm	564	313	591	137	80	25
	355 mm	630	353	662	140	83	25
	400 mm	630	398	662	131	74	25
	450 mm	793	447	832	173	106	25
	500 mm	793	497	832	163	97	25

Some Applications

-  Seasonal heating and/or cooling
-  Open ceilings/exposed ducts
-  High ceilings
-  Restaurants, Bars, Hotels
-  Movie Theaters, Stores, Offices, Car Dealers
-  Entrance halls (vertical blast)
-  Indoor Pools and corrosion-sensitive applications



Available Adjustment Mechanisms

DCG

Manually adjustable by rotating the inner core clockwise or counter-clockwise to move the cones up or down

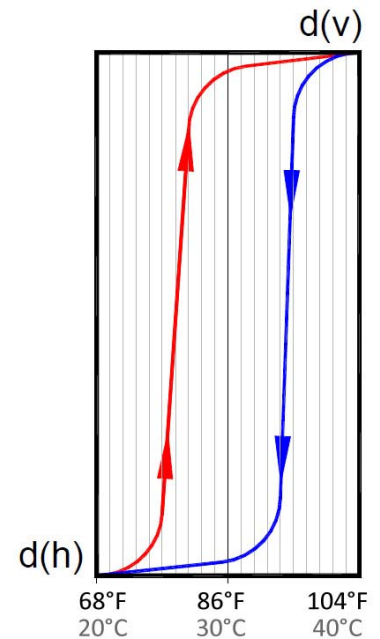
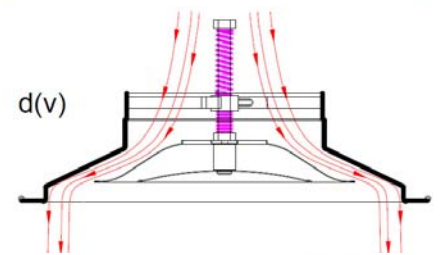
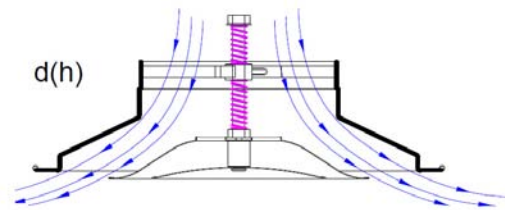
DCG-ACTIF

Energy Efficiency Product

Autonomous adjustment of air jet direction in reaction to supplied air temperature, by means of a thermodynamic spring. Designed to be used in premises with varying heights in excess of 13 feet (4 m) and with temperature differentials of up to 22°F (12°C).



ACTIF



15 minutes adjustment time from d(h) to d(v)

DCG-M150-L

Regulable diffuser by means of an On/Off servomotor.

DCG Performance Data

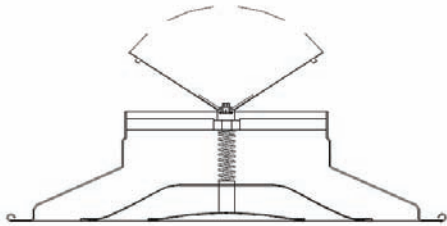
Neck Size	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400	1600
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	.090	.122	.160
6" (160mm)	CFM	81	101	122	142	162	203	244	284	325
	Pressure Loss (in.w.g.)	0.026	0.044	0.057	0.076	0.098	0.152	0.152	0.289	0.374
	NC	< 15	< 15	15	19	22	28	33	37	40
	Throw (ft) - Coanda Effect	2-3-4	2-4-6	3-5-7	3-6-8	4-7-10	5-9-13	6-11-16	8-13-19	9-15-23
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-4-5	3-4-6	3-5-7	4-6-10	5-8-12	6-10-15	7-11-17
8" (200mm)	CFM	140	175	209	244	279	349	419	489	559
	Pressure Loss (in.w.g.)	0.026	0.04	0.057	0.078	0.101	0.158	0.158	0.311	0.407
	NC	< 15	19	24	28	31	37	> 40	> 40	> 40
	Throw (ft) - Coanda Effect	2-3-5	2-4-6	3-5-7	4-6-9	4-7-10	5-9-13	7-11-17	8-13-20	9-16-23
	Throw (ft) - No Ceiling Effect	1-2-4	2-3-5	2-4-6	3-4-7	3-5-8	4-7-10	5-8-13	6-10-15	7-12-17
10" (250mm)	CFM	218	273	327	382	436	545	654	764	873
	Pressure Loss (in.w.g.)	0.046	0.072	0.103	0.141	0.183	0.287	0.287	0.565	0.736
	NC	< 15	< 15	21	26	31	39	> 40	> 40	> 40
	Throw (ft) - Coanda Effect	3-5-8	4-7-10	5-8-12	6-10-14	7-11-17	8-14-21	10-17-26	12-20-30	14-23-35
	Throw (ft) - No Ceiling Effect	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-11-16	8-13-19	9-15-23	11-18-26
12" (315mm)	CFM	335	419	503	587	671	839	1006	1174	
	Pressure Loss (in.w.g.)	0.048	0.076	0.11	0.152	0.201	0.319	0.319	0.638	
	NC	< 15	17	23	29	34	> 40	> 40	> 40	
	Throw (ft) - Coanda Effect	4-7-10	5-8-12	5-9-14	6-10-15	7-11-17	8-13-20	9-15-22	10-17-25	
	Throw (ft) - No Ceiling Effect	3-5-8	4-6-9	4-7-10	5-8-11	5-8-13	6-10-15	7-11-17	8-13-19	
14" (355mm)	CFM	428	535	641	748	855	1069	1283	1497	
	Pressure Loss (in.w.g.)	0.036	0.056	0.08	0.11	0.143	0.225	0.225	0.442	
	NC	< 15	16	22	27	31	38	> 40	> 40	
	Throw (ft) - Coanda Effect	4-8-11	5-9-13	6-10-15	7-11-17	7-12-18	9-14-22	10-16-25	11-18-27	
	Throw (ft) - No Ceiling Effect	3-6-8	4-7-10	4-7-11	5-8-13	6-9-14	6-11-16	7-12-18	8-14-21	
16" (400mm)	CFM	559	698	838	977	1117	1396	1676	1955	
	Pressure Loss (in.w.g.)	0.045	0.066	0.091	0.118	0.149	0.219	0.219	0.392	
	NC	< 15	21	26	31	35	> 40	> 40	> 40	
	Throw (ft) - Coanda Effect	5-8-12	5-9-13	6-10-15	6-11-16	7-12-17	8-13-20	9-15-22	10-16-24	
	Throw (ft) - No Ceiling Effect	4-6-9	4-7-10	4-7-11	5-8-12	5-9-13	6-10-15	7-11-16	7-12-18	
18" (450mm)	CFM	707	884	1060	1237	1414	1767	2121	2474	
	Pressure Loss (in.w.g.)	0.049	0.08	0.12	0.169	0.227	0.371	0.371	0.781	
	NC	21	28	33	38	> 40	> 40	> 40	> 40	
	Throw (ft) - Coanda Effect	5-9-13	6-10-15	7-11-17	7-12-19	8-14-20	9-16-23	10-18-26	12-19-29	
	Throw (ft) - No Ceiling Effect	4-6-10	4-7-11	5-8-13	6-9-14	6-10-15	7-12-18	8-13-20	9-15-22	
20" (500mm)	CFM	873	1091	1309	1527	1745	2182	2618	3054	
	Pressure Loss (in.w.g.)	0.037	0.056	0.079	0.106	0.136	0.209	0.209	0.392	
	NC	25	30	33	36	39	> 40	> 40	> 40	
	Throw (ft) - Coanda Effect	5-9-13	6-10-15	7-12-17	8-13-20	9-14-21	10-17-25	11-19-29	13-21-32	
	Throw (ft) - No Ceiling Effect	4-7-10	5-8-11	5-9-13	6-10-15	6-11-16	8-13-19	9-14-22	10-16-24	

Performance Notes


- NC value based on 10 db room attenuation
- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

DCG-R3G Pressure Loss & Sound Power Level Correction


Damper Correction Factor		d(h)		d(v)	
		100% Open	50% Open	100% Open	50% Open
6"D (160mm)	Pressure Loss	x 1.2	x 4.7	x 1.2	x 4.7
	NC	+1.4	+16	+1.4	+16
8"D (200mm)	Pressure Loss	x 1.1	x 3.6	x 1.1	x 3.6
	NC	+1.3	+16	+0.8	+15
10"D (250mm)	Pressure Loss	x 1.1	x 3.7	x 1.1	x 3.7
	NC	+3.4	+19	+3.8	+20
12"D (315mm)	Pressure Loss	x 1.5	x 6.5	x 1.5	x 6.5
	NC	+1.3	+16	+0.6	+15
14"D (350mm)	Pressure Loss	x 1.2	x 8	x 1.2	x 8
	NC	+2.2	+11	+1.6	+10
16"D (400mm)	Pressure Loss	x 1.1	x 3.4	x 1.1	x 3.4
	NC	+2.2	+17	+1.6	+16
18"D (450mm)	Pressure Loss	x 1.2	x 7.1	x 1.2	x 7.1
	NC	+3.2	+17	+3.5	+17
20"D (500mm)	Pressure Loss	x 1.2	x 5.8	x 1.2	x 5.8
	NC	+2.2	+18	+1.5	+18



DCG-R3G
Integrated Butterfly Volume Damper
(N/A for Imperial 6" and 12")



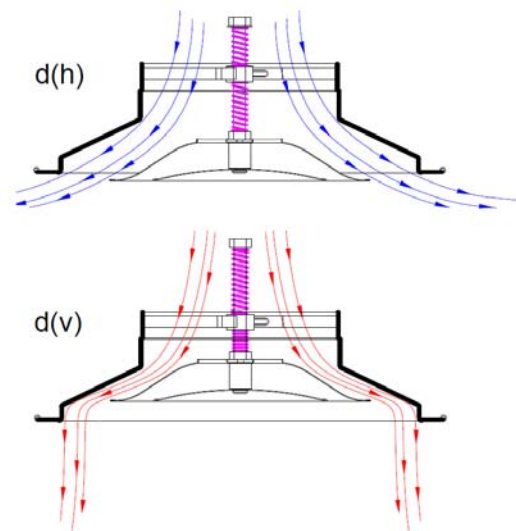
OBD
Opposed Blade Damper



RSBD
Radial Sliding Blade Damper

(only for Imperial 6" and 12")

Downward Projection of Heated Air & Vertical Adjustment of Core



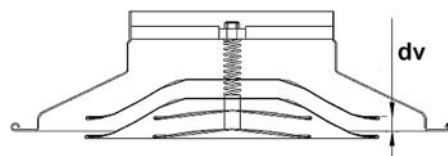
Downward Projection of Heated Air & Vertical Adjustment of Core

Neck Size	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400	1600
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	.090	.122	.160
6" (160mm)	CFM	81	101	122	142	162	203	244	284	325
	dv = 13/64" (5 mm)	5-2-2	7-3-2	9-4-3	10-5-4	12-6-4	16-8-6	20-10-7	24-12-9	29-14-10
	dv = 5/16" (8 mm)	8-4-3	10-5-4	13-6-5	16-7-6	18-9-7	24-12-9	30-15-11	37-18-14	43-21-16
	dv = 19/32" (15 mm)	11-5-4	14-7-5	18-9-6	22-10-8	26-12-9	34-16-12	43-20-15	51-25-19	61-29-22
8" (200mm)	CFM	140	175	209	244	279	349	419	489	559
	dv = 5/16" (8 mm)	10-6-5	11-7-6	13-8-6	14-9-7	15-10-8	18-11-9	20-13-10	22-14-11	24-15-12
	dv = 25/64" (10 mm)	12-8-6	14-9-7	15-10-8	17-11-8	19-12-9	22-14-11	25-16-12	27-17-14	30-19-15
	dv = 29/32" (23 mm)	16-10-8	18-12-9	21-13-10	23-15-11	25-16-12	29-19-14	33-21-16	36-23-18	40-25-20
10" (250mm)	CFM	218	273	327	382	436	545	654	764	873
	dv = 13/64" (5 mm)	11-5-5	13-7-6	15-8-6	17-9-7	19-10-8	23-12-10	27-13-11	30-15-13	34-17-14
	dv = 25/64" (10 mm)	16-8-6	19-9-8	22-11-9	25-12-10	27-14-11	33-16-14	38-19-16	43-22-18	48-24-20
	dv = 45/64" (18 mm)	19-10-8	23-12-10	27-14-11	31-15-13	34-17-14	41-21-17	48-24-20	54-27-23	60-30-25
12" (315mm)	CFM	335	419	503	587	671	839	1006	1174	
	dv = 33/64" (13 mm)	12-7-5	15-9-7	18-11-8	22-13-10	25-15-11	32-19-14	39-24-17	46-28-20	
	dv = 25/32" (20 mm)	16-10-7	20-12-9	25-15-11	29-18-13	34-21-15	43-26-19	53-32-23	62-38-27	
	dv = 1 1/16" (27 mm)	22-13-10	28-17-12	34-21-15	40-24-18	46-28-20	59-36-26	72-44-32	85-52-37	
14" (355mm)	CFM	428	535	641	748	855	1069	1283	1497	
	dv = 25/64" (10 mm)	7-6-4	9-7-6	12-9-7	14-11-9	17-13-10	22-17-13	27-22-17	33-26-20	
	dv = 19/32" (15 mm)	12-9-7	15-12-9	19-15-12	23-18-14	27-21-16	35-28-22	44-35-27	53-42-33	
	dv = 29/32" (23 mm)	18-14-11	23-19-14	29-23-18	35-28-22	41-33-25	54-43-33	68-54-42	82-65-50	
16" (400mm)	CFM	559	698	838	977	1117	1396	1676	1955	2234
	dv = 13/64" (5 mm)	13-9-7	16-11-9	19-13-10	21-15-12	24-17-13	29-20-16	34-24-19	39-27-22	44-31-25
	dv = 5/16" (8 mm)	18-13-10	22-15-12	26-18-15	30-21-17	34-23-19	41-28-23	48-33-27	55-38-31	62-43-34
	dv = 35/64" (14 mm)	24-17-14	30-20-16	35-24-19	40-27-22	45-31-25	54-37-30	63-44-35	73-50-40	82-56-46
18" (450mm)	CFM	707	884	1060	1237	1414	1767	2121	2474	
	dv = 45/64" (18 mm)	17-10-8	20-12-10	23-14-11	26-16-12	28-17-14	33-20-16	38-23-18	42-26-20	
	dv = 63/64" (25 mm)	23-14-11	27-16-13	31-19-15	34-21-16	38-23-18	45-27-21	51-31-24	57-34-27	
	dv = 1 3/8" (35 mm)	28-17-14	33-20-16	38-23-18	42-26-20	47-28-22	55-33-26	63-38-30	70-42-33	
20" (500mm)	CFM	873	1091	1309	1527	1745	2182	2618	3054	
	dv = 45/64" (18 mm)	13-8-7	15-9-8	18-11-9	20-12-10	22-14-11	26-16-14	31-19-16	35-21-18	
	dv = 63/64" (25 mm)	16-10-8	19-12-10	22-14-11	25-15-13	28-17-14	33-21-17	39-24-20	44-27-22	
	dv = 1 3/8" (35 mm)	23-14-12	27-17-14	31-19-16	35-22-18	39-24-20	47-29-24	54-34-28	62-38-32	

Performance Notes

- Vertical throw values (in ft) are respectively for **isothermal** and temperature differences of **9°F (5°C)** and **18°F (10°C)** in heating mode, all at **terminal velocity of 40 fpm**.

- dv is the vertical adjustment of the diffuser core and is measured by the core offset towards the inside of the diffuser, compared to its original horizontal position.

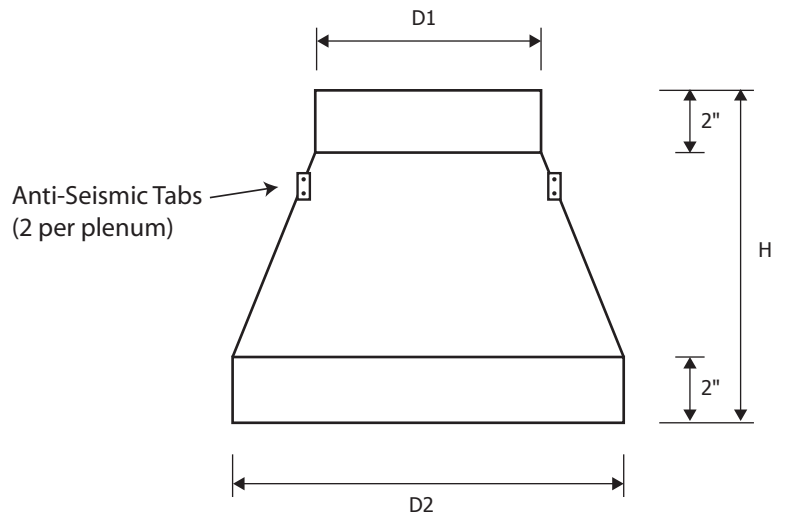


ACTIF
Heating

PLRR Plenum

Optional plenum used to equalize the air (specify with EQ air equalizing grid option), to use an oversized face with a given duct diameter, or to add a special damper to DCG diffusers.

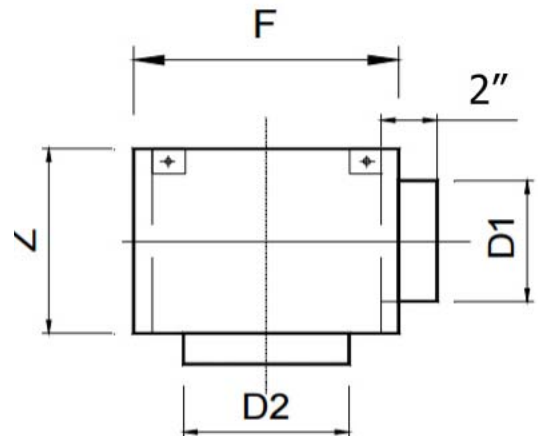
Model	Duct	D1	D2	H
PLRR 0504	4"	3 7/8	5	6
PLRR 0505	5"	4 7/8	5	6
PLRR 0605	5"	4 7/8	6 3/8	6
PLRR 0606	6"	5 7/8	6 3/8	6
PLRR 0805	5"	4 7/8	8	8
PLRR 0806	6"	5 7/8	8	8
PLRR 0808	8"	7 7/8	8	8
PLRR 1006	6"	5 7/8	10	8
PLRR 1008	8"	7 7/8	10	8
PLRR 1010	10"	9 7/8	10	8
PLRR 1208	8"	7 7/8	12 3/8	10
PLRR 1210	10"	9 7/8	12 3/8	10
PLRR 1212	10"	9 7/8	12 3/8	10



PLXP Plenum

Optional plenum with side connection used when space in the ceiling is limited, when acoustical performance is important or to add a special damper to DCG diffusers.

Model	Duct	D1	D2	F	Z
PLXP 05	4"	3 7/8	5	8	6
PLXP 06	5"	4 7/8	6 19/64	10	7
PLXP 08	6"	5 7/8	8	12	10
PLXP 10	8"	7 7/8	10	15	11
PLXP 12	10"	9 7/8	12 13/32	19	14



How to Specify DCG

Supply and mounting of model DCG round diffuser with adjustable core which can be rotated up or down to supply air in a vertical or horizontal flow. Constructed from spun aluminum, powder coated in white M9016. By EffectiV HVAC / MADEL.

How to Specify DCG-ACTIF

Supply and mounting of model DCG-ACTIF adjustable round diffuser. Autonomously thermally adjustable by means of a thermodynamic spring. Constructed from spun aluminum, powder coated in white M9016. By EffectiV HVAC / MADEL.

How to Specify DCG-M150-L

Supply and mounting of model DCG-M150-L adjustable round diffuser. Adjustable by means of an On/Off servomotor. Constructed from spun aluminum, powder coated in white M9016. By EffectiV HVAC / MADEL.

How to Order DCG Series

<p>DCG -R3G 08</p>	<p>Imperial</p>	<p>Metric</p>
	06 6"D	160 160 mm
	08 8"D	200 200 mm
	10 10"D	250 250 mm
	12 12"D	315 315 mm
	14 14"D	350 350 mm
	16 16"D	400 400 mm
	18 18"D	450 450 mm
	20 20"D	500 500 mm
<p>Neck Diameter</p>	R3G Butterfly Damper	
<p>Damper</p>	OBD Opposed Blade Damper	
	RSBD Radial Sliding Blade Damper	
<p>Model</p>	DCG Manual adjustment	
	DCG-ACTIF Automatic thermal adjustment	
	DCG-M150-L Regulable with a On/Off servomotor	









DSO

Aluminum Round Plaque Diffusers



DSO SERIES

Aluminum Round Plaque Diffusers

-  Architecturally appealing lines and finish
-  Removable central disc facilitates installation and maintenance
-  Heavy-gauge spun aluminum construction
-  Duct mounted or drywal
-  Ideal for heating and cooling applications
-  Available in imperial and metric dimensions



DSO
by **MADEL®**

Neck Diameter	Free Area (sqf)	Min cfm	Max cfm
6" (160 mm)	0.215	106	212
8" (200 mm)	0.338	166	332
10" (250 mm)	0.527	259	519
12" (315 mm)	0.839	412	823

DSO Aluminum Round Plaque Diffusers by EffectiV HVAC™ and MADEL® are recommended for heating, ventilating, and cooling applications. DSO diffusers provide a 360° air diffusion pattern and excellent performance in VAV systems.

They can be mounted in false ceilings, suspended from ductwork or from the ceiling.

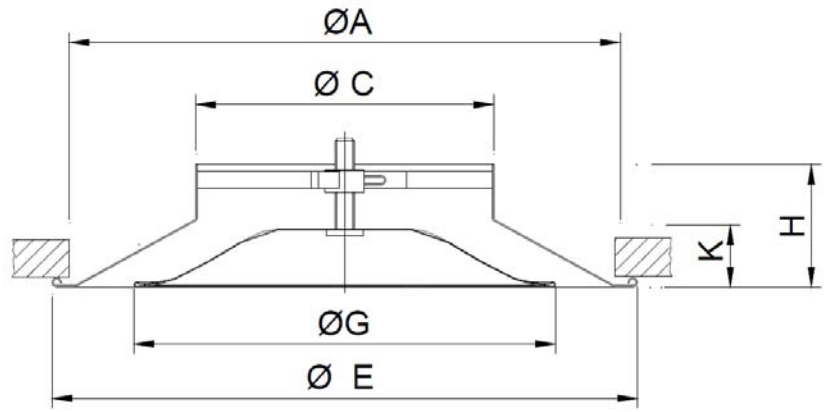
The removable central disc greatly facilitates installation and maintenance.

DSO diffusers provide great performance in temperature differentials up to 22°F (12°C) and are suitable for premises with ceilings 8.5 ft (2.6 m) up to 13 ft (4 m).

DSO Plaque diffusers meet the functional requirements of modern architecture. Its minimalist design fits perfectly in any kind of interior design.

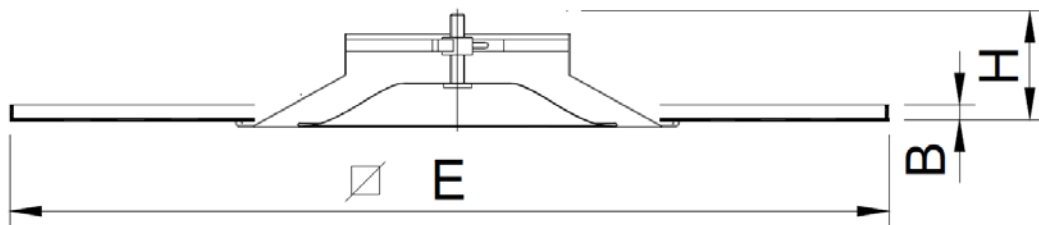


DSO Dimensions



	Duct Diameter	A	C	E	H	K
Imperial	6"	11 13/16	5 3/4	12 51/64	4 15/16	1 47/64
	8"	15 43/54	7 3/4	16 47/64	4 17/32	2 9/32
	10"	19 11/64	9 3/4	20 5/64	5 3/64	2 53/64
	12"	21 31/32	11 3/4	22 41/64	6 19/32	3 5/32
Metric	160 mm	300	157	325	101	44
	200 mm	398	197	425	115	58
	250 mm	487	248	510	128	72
	315 mm	550	313	575	137	80

DSO-MOD Dimensions



	Duct Diameter	B	E	H
Imperial	6"	15/32	23 3/4 x 23 3/4	4 15/16
	8"	15/32	23 3/4 x 23 3/4	4 17/32
	10"	15/32	23 3/4 x 23 3/4	5 3/64
	12"	15/32	23 3/4 x 23 3/4	6 19/32

Some Applications

-  Modern architecture
-  Minimalist design
-  Open ceilings/exposed ducts
-  Restaurants, Bars, Hotels, Retail
-  Office spaces
-  Showrooms
-  Indoor Pools and corrosion-sensitive applications



DSO Performance Data

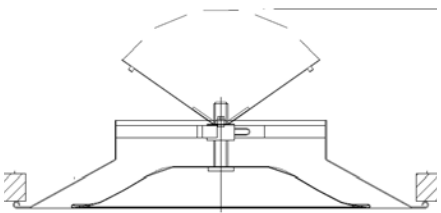
Neck Size	Neck (fpm) Velocity	300	400	500	600	700	800	1000	1200	1400
	Velocity Pressure (H2O)	.010	.010	.016	.022	.031	.041	.062	.090	.122
6" (160mm)	CFM	59	79	98	118	137	157	196	236	275
	Pressure Loss (in.w.g.)	0.017	0.027	0.04	0.055	0.071	0.09	0.132	0.182	0.237
	NC	< 15	< 15	< 15	< 20	< 20	< 25	< 30	< 35	> 40
	Throw (ft) - Coanda Effect	1-2-3	2-3-4	2-4-5	3-4-7	3-5-8	4-6-9	4-7-11	5-9-13	6-10-15
	Throw (ft) - No Ceiling Effect	1-2-2	1-2-3	2-3-4	2-3-5	2-4-6	3-4-7	3-5-8	4-7-10	5-8-12
8" (200mm)	CFM	105	140	175	209	244	279	349	419	
	Pressure Loss (in.w.g.)	0.02	0.033	0.048	0.065	0.086	0.108	0.159	0.217	
	NC	< 15	< 15	< 15	< 20	< 25	< 25	< 35	> 40	
	Throw (ft) - Coanda Effect	2-3-4	2-4-6	3-5-7	3-5-8	4-6-10	4-7-11	6-9-14	7-11-17	
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-3-5	2-4-6	3-5-7	3-5-8	4-7-10	5-8-12	
10" (250mm)	CFM	164	218	273	327	382	436	545	654	
	Pressure Loss (in.w.g.)	0.031	0.05	0.074	0.101	0.133	0.166	0.245	0.335	
	NC	< 15	< 15	< 15	< 20	< 25	< 25	< 35	> 40	
	Throw (ft) - Coanda Effect	2-3-5	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-10-15	7-12-18	
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-5	2-4-6	3-5-7	3-5-8	4-6-9	5-8-11	5-9-14	
12" (315mm)	CFM	236	314	393	471	550	628	785	942	1100
	Pressure Loss (in.w.g.)	0.03	0.05	0.073	0.1	0.13	0.164	0.241	0.329	0.43
	NC	< 15	< 15	< 15	< 20	< 25	< 25	< 30	> 40	> 40
	Throw (ft) - Coanda Effect	2-3-5	3-4-7	3-6-8	4-7-10	5-8-12	5-9-13	7-11-17	8-13-20	9-15-23
	Throw (ft) - No Ceiling Effect	2-2-4	2-3-5	3-4-6	3-5-8	3-6-9	4-7-10	5-8-13	6-10-15	7-12-17

Performance Notes

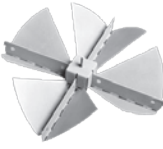
- NC value based on 10 db room attenuation
- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

DSO-R3G Pressure Loss & Sound Power Level Correction


Damper Correction Factor		100% Open	50% Open
6"D (160mm)	Pressure Loss	x 1.3	x 5.4
	NC	+1.6	+10.4
8"D (200mm)	Pressure Loss	x 1.2	x 5.5
	NC	+0.6	+11.7
10"D (250mm)	Pressure Loss	x 1.3	x 5.8
	NC	+0.2	+10.3
12"D (315mm)	Pressure Loss	x 1.3	x 5.5
	NC	-0.8	+6.2



DSO-R3G
Integrated Butterfly Volume Damper
(N/A for Imperial 6" and 12")



OBD
Opposed Blade Damper



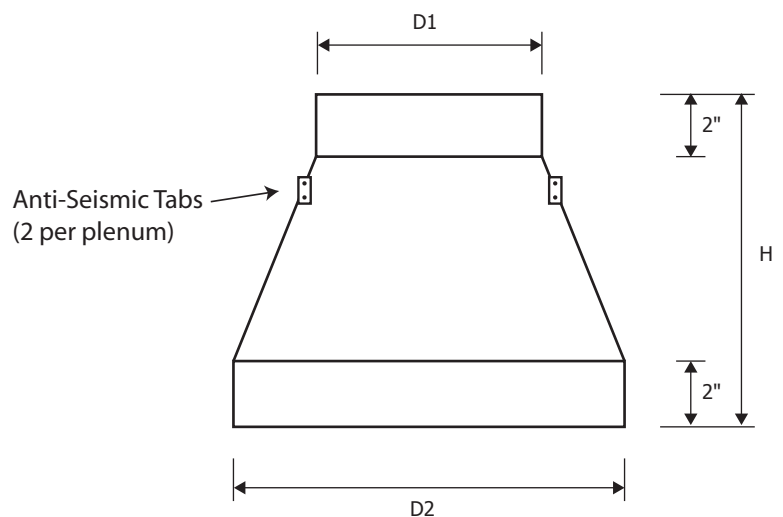
RSBD
Radial Sliding Blade Damper

(only for Imperial 6" and 12")

PLRR Plenum

Optional plenum used to equalize the air (specify with EQ air equalizing grid option), to use an oversized face with a given duct diameter, or to add a special damper to DCG diffusers.

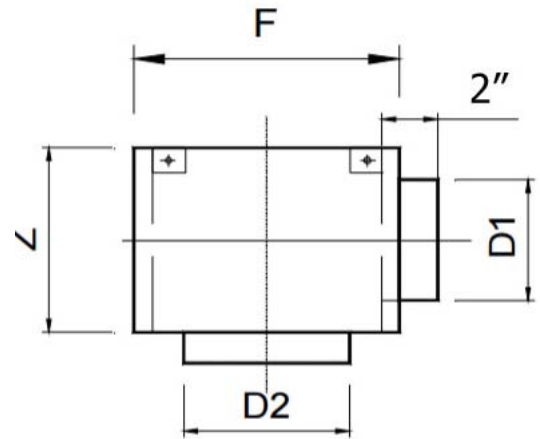
Model	Duct	D1	D2	H
PLRR 0605	5"	4 7/8	6 3/8	6
PLRR 0606	6"	5 7/8	6 3/8	6
PLRR 0805	5"	4 7/8	8	8
PLRR 0806	6"	5 7/8	8	8
PLRR 0808	8"	7 7/8	8	8
PLRR 1006	6"	5 7/8	10	8
PLRR 1008	8"	7 7/8	10	8
PLRR 1010	10"	9 7/8	10	8
PLRR 1208	8"	7 7/8	12 3/8	10
PLRR 1210	10"	9 7/8	12 3/8	10
PLRR 1212	10"	9 7/8	12 3/8	10



PLXP Plenum

Optional plenum with side connection used when space in the ceiling is limited, when acoustical performance is important or to add a special damper to DCG diffusers.

Model	Duct	D1	D2	F	Z
PLXP 06	5"	4 7/8	6 19/64	10	7
PLXP 08	6"	5 7/8	8	12	10
PLXP 10	8"	7 7/8	10	15	11
PLXP 12	10"	9 7/8	12 13/32	19	14



How to Specify DSO

Supply and mounting of model DSO Aluminum Round Plaque Diffuser with removable core for easier installation and maintenance. Constructed from spun aluminum, powder coated in white M9016. By Effectiv HVAC / MADEL.

How to Order DSO Series

DSO	-R3G	08	Imperial		Metric	
			06	6"D	160	160 mm
			08	8"D	200	200 mm
			10	10"D	250	250 mm
			12	12"D	315	315 mm
		Neck Diameter				
		Damper	R3G	Butterfly Damper		
			OBD	Opposed Blade Damper		
			RSBD	Radial Sliding Blade Damper		
			DSO	Round diffuser		
			DSO-MOD	Square face for false ceiling		
Model						











KAM

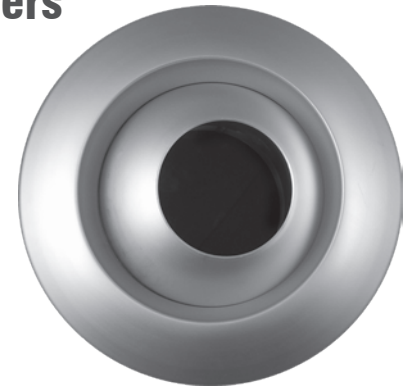
Aluminum Adjustable Long Throw Nozzle Jet Diffusers

EFFECTIVE  TM

KAM SERIES

Aluminum Adjustable Long Throw Nozzle Jet Diffusers

-  Adjust core to redirect the air jet
-  Long throw ideal for large rooms or very high ceilings
-  Manual adjustment, thermodynamic or actuator controlled
-  Architecturally appealing lines and finish
-  Heavy-gauge spun aluminum construction
-  Duct mounted or drywall mounted with invisible screws
-  Ideal for heating and cooling applications
-  Available in metric standard dimensions



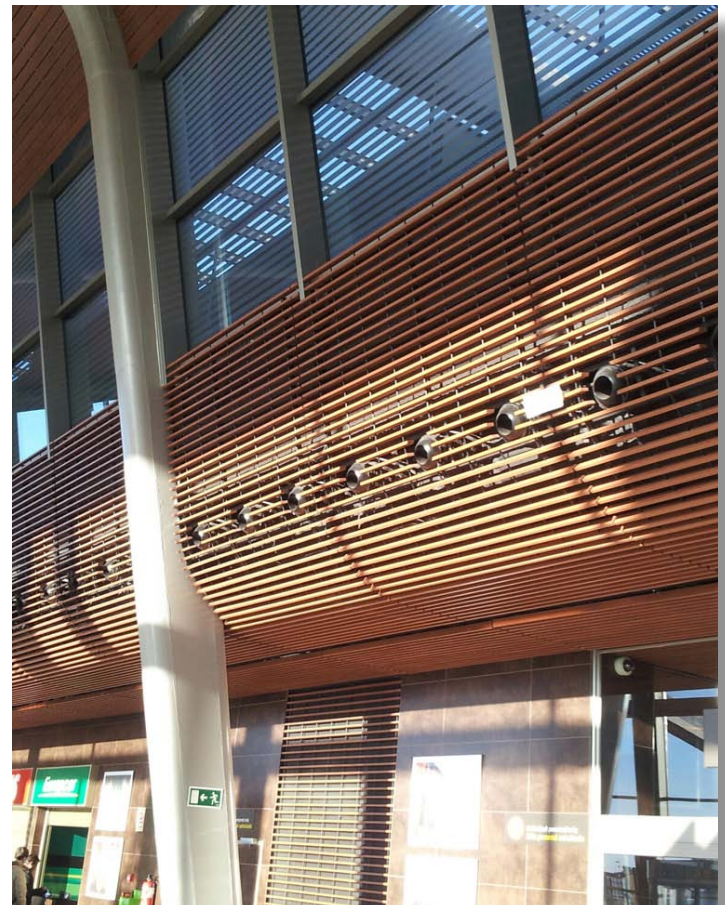
KAM-W
by MADEL®

PATENTED

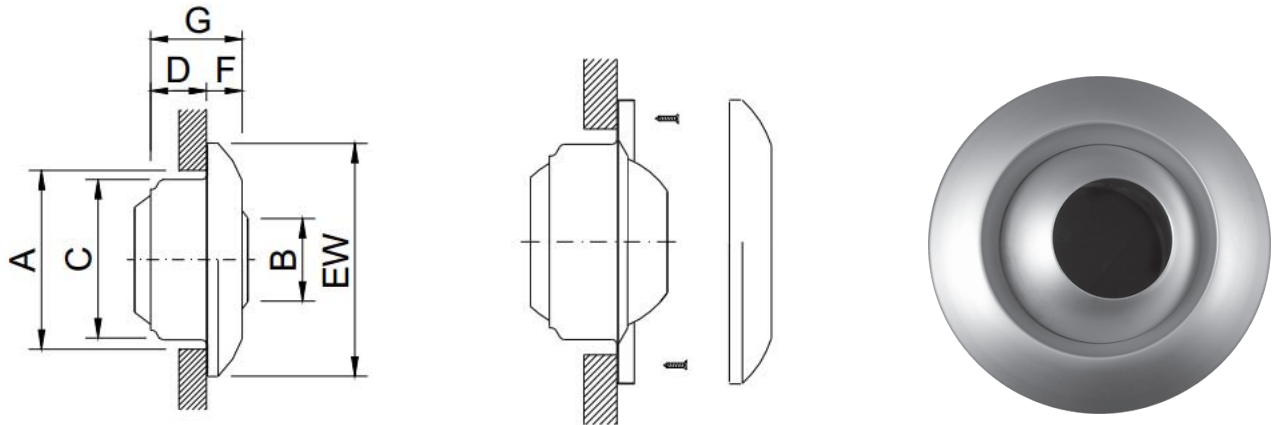
The KAM Series jet nozzle diffusers by EffectiV HVAC™ and MADEL® have been designed specifically to provide air diffusion into large spaces. They can achieve a very long throw for both heating and cooling whilst given flexibility in direction.

The design is the result of a collaboration of MADEL® and Benedito Design with the goal to provide a diffuser that encompasses smooth modern aesthetic lines appealing to the architectural market while providing a unique performance for specific applications.

List Imperial	List Metric	Actual Neck Diameter	Free Area (sqf)	Min cfm	Max cfm
05	125	4.85" (123 mm)	0.132	16	129
06	160	6.22" (158 mm)	0.216	26	179
08	200	7.8" (198 mm)	0.338	54	303
10	250	9.76" (248 mm)	0.529	100	465
12	315	12.32" (313 mm)	0.839	191	665
16	400	15.67" (400 mm)	1.345	294	897



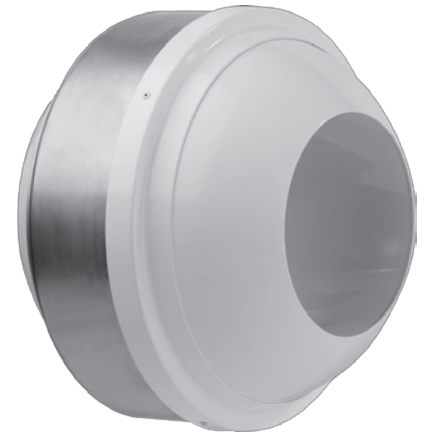
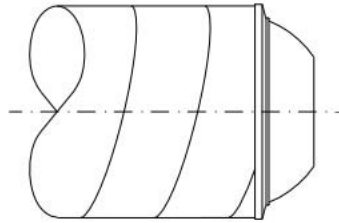
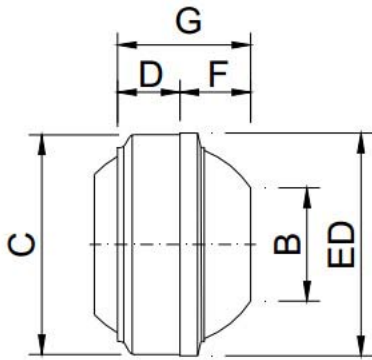
KAM-W - Surface Mounted



Model	Duct Size	B	C	D	EW	F	G
KAM-W 05	5"D	2 13/32"	4 27/32"	2 11/64"	7 1/8"	1 1/16"	3 11/32"
KAM-W 06	6"D	3 5/32"	6 7/32"	2 11/64"	9 3/32"	1 11/32"	3 5/8"
KAM-W 08	8"D	4 1/64"	7 51/64"	2 29/32"	11 3/8"	1 37/64"	4 51/64"
KAM-W 10	10"D	5 1/8"	9 49/64"	3 57/64"	14 9/64"	1 57/64"	6 7/32"
KAM-W 12	12.5"D	6 17/32"	12 21/64"	4 61/64"	17 53/64"	2 1/4"	7 23/32"
KAM-W 16	16"D	8 11/32"	15 43/64"	6 3/8"	22 41/64"	2 61/64"	10 9/32"



KAM-D - Duct Mounted



Model	Duct Size	B	C	D	ED	F	G
KAM-D 05	5"D	2 13/32"	4 27/32"	2 11/64"	4 61/64"	1 1/16"	3 11/32"
KAM-D 06	6"D	3 5/32"	6 7/32"	2 11/64"	6 3/8"	1 11/32"	3 5/8"
KAM-D 08	8"D	4 1/64"	7 51/64"	2 29/32"	7 63/64"	1 37/64"	4 51/64"
KAM-D 10	10"D	5 1/8"	9 49/64"	3 57/64"	9 61/64"	1 57/64"	6 7/32"
KAM-D 12	12.5"D	6 17/32"	12 21/64"	4 61/64"	12 19/32"	2 1/4"	7 23/32"
KAM-D 16	16"D	8 11/32"	15 43/64"	6 3/8"	15 29/32"	2 61/64"	10 9/32"



Some Applications



High ceilings and/or very large spaces



Seasonal heating and/or cooling



When precise, directional jets are required



Restaurants, Bars, Reception Halls, Car Dealers, Showrooms, Indoor Pools, Movie Theaters, Stores, Hotels, Casinos



Entrance halls (vertical blast)



Corrosion-sensitive applications



Available Adjustment Mechanisms

KAM

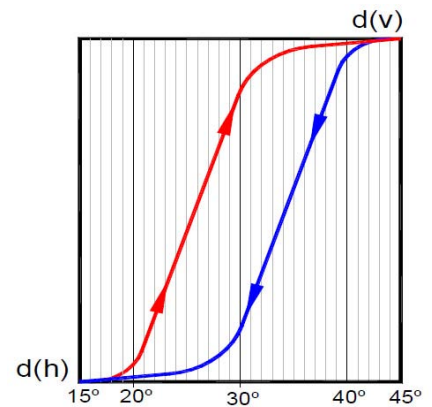
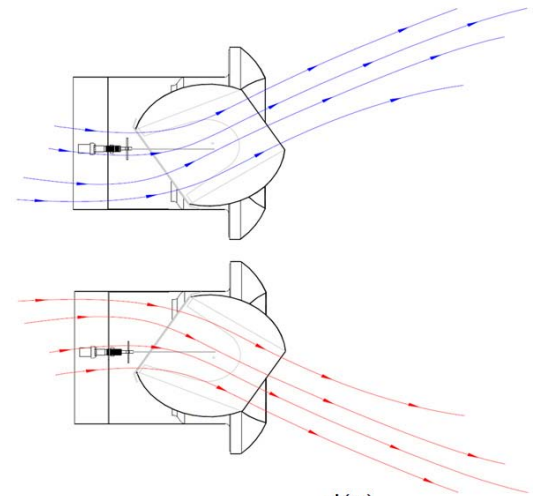
Manually adjustable.

KAM-ACTIF

Energy Efficiency Product

Jet nozzle diffuser that is autonomously thermally adjustable by means of a thermodynamic piston. The supply air angle of the air jet varies in accordance with the supply air temperature, to significantly reduce stratification and improve comfort and efficiency.

ACTIF

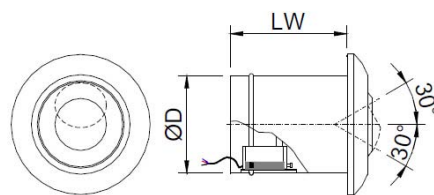


30 minutes adjustment time from d(h) to d(v)

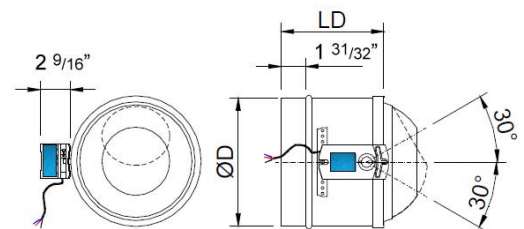
KAM-M5

Regulable diffuser by means of an On/Off servomotor.

Duct Diameter	LW	LD
10"D	5 1/8"	9 49/64"
12.5"D	6 17/32"	12 21/64"
16"D	8 11/32"	15 43/64"



KAM-W-M5



KAM-D-M5

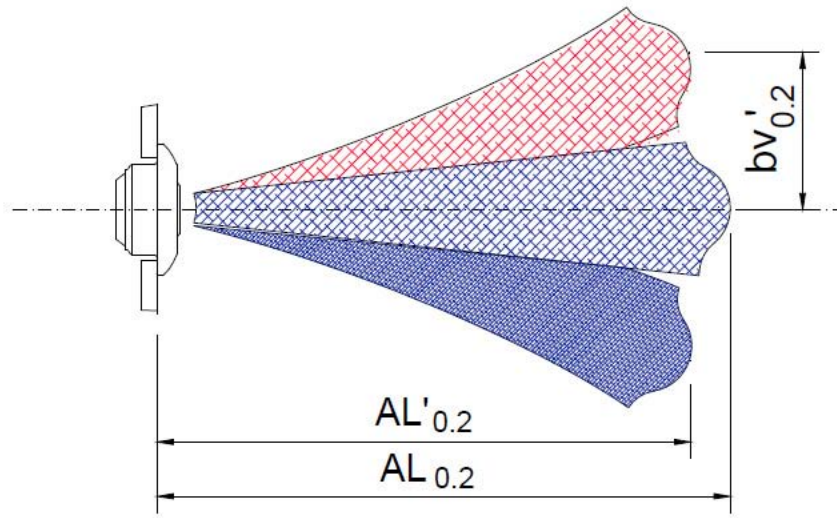
KAM Performance Data

Neck Size	Neck (fpm) Velocity	300	400	500	600	700	800	1000	1200
	Velocity Pressure (H2O)	0.006	.010	.016	.022	.031	.041	.062	.090
5" (125mm)	CFM	41	55	68	82	95	109	136	164
	Pressure Loss (in.w.g.)	0.141	0.231	0.328	0.444	0.573	0.715	1.037	1.422
	NC	< 15	< 15	19	24	28	31	37	41
	Throw (ft) - Coanda Effect	21-35-53	28-46-70	34-57-85	40-67-101	47-78-116	53-88-132	65-109-163	78-130-195
	Throw (ft) - No Ceiling Effect	16-26-40	21-35-52	25-42-64	30-50-76	35-58-87	40-66-99	49-81-122	59-97-146
6" (160mm)	CFM	61	81	101	122	142	162	203	244
	Pressure Loss (in.w.g.)	0.117	0.187	0.27	0.368	0.475	0.592	0.865	1.178
	NC	< 15	17	22	26	30	33	38	42
	Throw (ft) - Coanda Effect	21-35-53	28-46-69	34-57-85	41-68-102	47-78-117	53-89-133	66-110-165	78-131-196
	Throw (ft) - No Ceiling Effect	16-26-40	21-35-52	26-43-64	30-51-76	35-59-88	40-66-100	49-82-124	59-98-147
8" (200mm)	CFM	105	140	175	209	244	279	349	419
	Pressure Loss (in.w.g.)	0.132	0.213	0.31	0.415	0.538	0.673	0.978	1.328
	NC	< 15	20	24	28	31	33	38	41
	Throw (ft) - Coanda Effect	29-48-72	38-63-94	47-78-117	55-92-138	64-106-159	72-121-181	89-149-224	106-177-266
	Throw (ft) - No Ceiling Effect	22-36-54	28-47-71	35-58-87	41-69-103	48-80-120	54-90-136	67-112-168	80-133-199
10" (250mm)	CFM	164	218	273	327	382	436	545	654
	Pressure Loss (in.w.g.)	0.105	0.17	0.247	0.334	0.433	0.54	0.785	1.064
	NC	15	20	24	28	31	34	38	41
	Throw (ft) - Coanda Effect	37-62-93	49-81-122	60-101-151	72-119-179	83-138-207	94-157-235	116-194-290	138-230-345
	Throw (ft) - No Ceiling Effect	28-47-70	37-61-92	45-75-113	54-90-134	62-104-156	70-117-176	87-145-218	103-172-259
12" (315mm)	CFM	244	325	406	487	568	649	812	974
	Pressure Loss (in.w.g.)	0.087	0.141	0.204	0.277	0.359	0.448	0.652	0.883
	NC	17	23	26	30	32	35	39	42
	Throw (ft) - Coanda Effect	37-61-92	48-80-120	59-99-148	71-118-176	82-136-204	93-154-232	114-191-286	136-227-340
	Throw (ft) - No Ceiling Effect	28-46-69	36-60-90	45-74-111	53-88-132	61-102-153	69-116-174	86-153-215	102-170-255
16" (400mm)	CFM	419	559	698	838	977	1117	1396	1676
	Pressure Loss (in.w.g.)	0.075	0.121	0.176	0.238	0.308	0.385	0.559	
	NC	27	32	36	39	42	44	48	
	Throw (ft) - Coanda Effect	44-74-111	58-97-146	72-120-180	85-142-214	99-165-247	112-187-280	138-231-346	
	Throw (ft) - No Ceiling Effect	33-55-83	44-73-109	54-90-135	64-107-160	74-123-185	84-140-210	104-173-260	

Performance Notes

- NC value based on 10 db room attenuation
- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

Correction Factors for Horizontal Throw



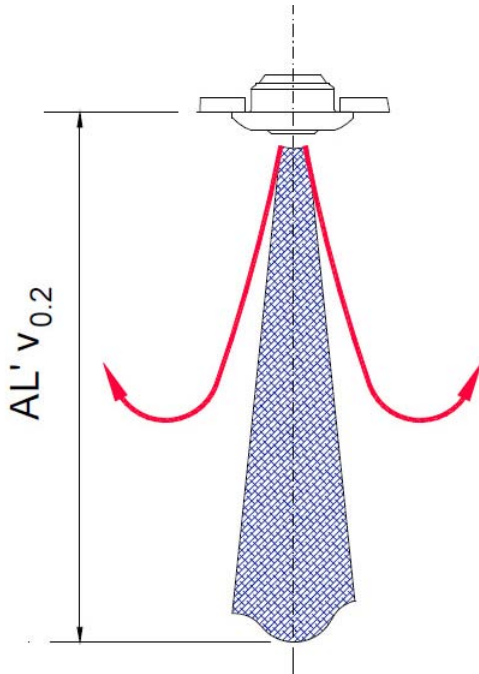
$$bv = kh \times \text{Throw}$$

$$\text{Throw}'(\Delta T) = KI \times \text{Throw}$$

kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 $AL_{0.2}$ = Distance at which velocity reaches 40 fpm

Delta T Correction Factors						
	125 - 160		200-250		315 - 400	
ΔT (F)	Kh	KI	Kh	KI	Kh	KI
-25	-0.385	0.84	-0.54	0.84	-0.7	0.84
-20	-0.315	0.87	-0.43	0.87	-0.55	0.87
-15	-0.23	0.91	-0.325	0.91	-0.42	0.91
-10	-0.155	0.935	-0.22	0.935	-0.28	0.935
-5	-0.08	0.97	-0.105	0.97	-0.14	0.97
0	0	1	0	1	0	1
5	0.08	0.97	0.105	0.97	0.14	0.97
10	0.155	0.935	0.22	0.935	0.28	0.935
15	0.23	0.91	0.325	0.91	0.42	0.91
20	0.315	0.87	0.43	0.87	0.55	0.87
25	0.385	0.84	0.54	0.84	0.7	0.84

Correction Factors for Vertical Throw



$$\text{Throw}'(\Delta T) = K_v \times \text{Throw}$$

K_v = Correction Factor for Vertical Diffusion

$AL'v_{0.2}$ = Vertical distance at which velocity reaches 40 fpm

ΔT (F)	K_v
-25	1.445
-20	1.36
-15	1.27
-10	1.18
-5	1.08
0	1
5	0.91
10	0.82
15	0.73
20	0.65
25	0.555

How to Specify KAM Series

Supply and mounting of model KAM aluminum long throw jet nozzle diffuser with adjustable core which can be rotated to adjust direction of the airflow. Constructed from spun aluminum, powder coated in white M9016 or metallic grey M9006. By EffectiV HVAC / MADEL.

How to Specify KAM-ACTIF

Supply and mounting of model KAM-ACTIF aluminum long throw jet nozzle diffuser. Autonomously thermally adjustable by means of a thermodynamic piston. Constructed from spun aluminum, powder coated in white M9016 or metallic grey M9006. By EffectiV HVAC / MADEL.

How to Specify KAM-M5

Supply and mounting of model KAM-M5 aluminum long throw jet nozzle diffuser. Adjustable by means of an On/Off actuator. Constructed from spun aluminum, powder coated in white M9016 or metallic grey M9006. By EffectiV HVAC / MADEL.

How to Order KAM Series

KAM	-W	200	/M9016		
			Finish	/M9006	Grey (RAL 9006 White Aluminum)
				/M9016	White (RAL 9016 Traffic White)
				Imperial	Metric
			Neck Diameter	05	5"D 125 125 mm
				06	6.5"D 160 160 mm
				08	8"D 200 200 mm
				10	10"D 250 250 mm
				12	12.5"D 315 315 mm
				16	16"D 400 400 mm
			Mounting	D	Duct
				W	Surface
			Model	KAM	Manually adjustable
				KAM-ACTIF	Autonomously thermally adjustable
				KAM-M5	Adjustable by means of an On/Off actuator



KOBE
Adjustable Long Throw Linear Jet Diffusers



KOBE SERIES

Adjustable Long Throw Linear Jet Diffusers



KOBE
by MADEL®



Adjustable long throw, ideal for large rooms or high ceilings



Ideal solution to push air downwards and to cover windowed walls



Six different slot widths to answer requirements for a wide range of air volumes



Architecturally appealing linear diffuser



Easy clip mounting system available with PLKB plenum



Made in aluminium

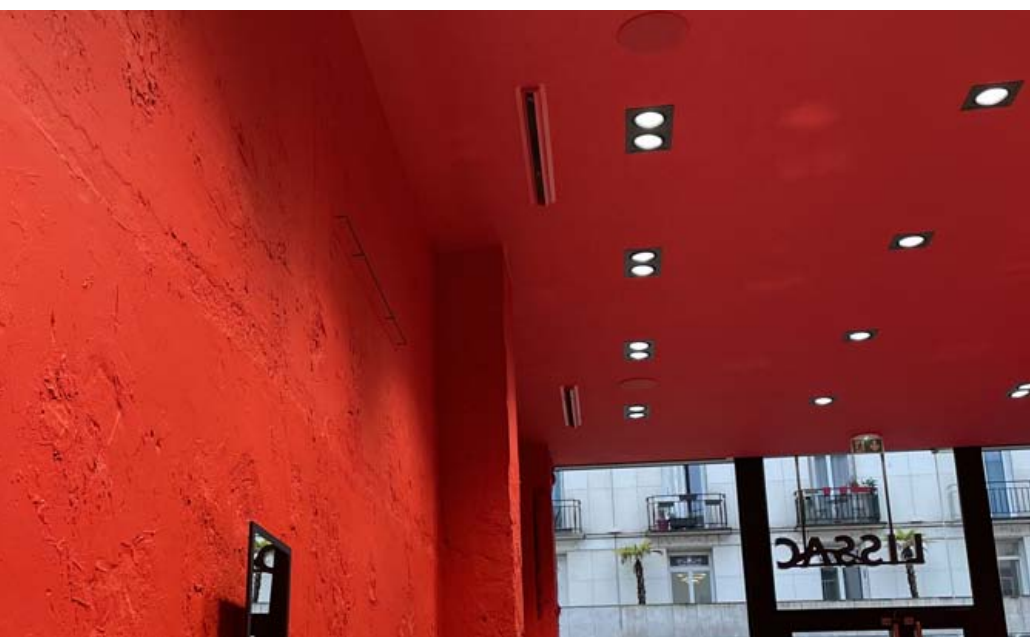
KOBE Long Throw Adjustable Linear Jet Diffusers have been designed to combine aesthetics with technical performance.

They can be mounted on the wall to diffuse the air horizontally in large spaces, or the ceiling to diffuse the air downward, for instance to cover high windowed walls.

With various slot sizes available and an adjustable supply angle of $\pm 30^\circ$, KOBE diffusers are suitable for all types of architectures and airflow requirements.

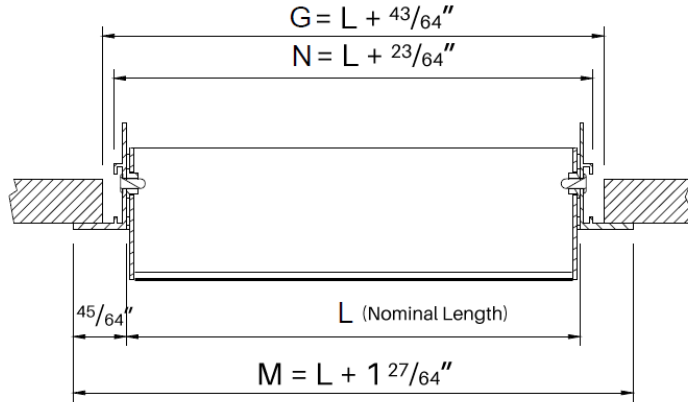
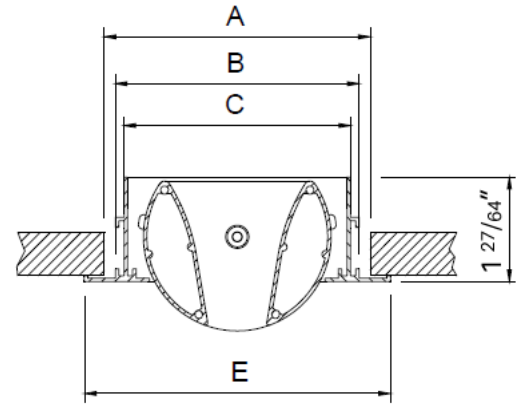
KOBE Long Throw Adjustable Linear Jet Diffusers are ideal for installation in large spaces such as shopping centers, airports, stations, sports halls, etc.

KOBE diffusers work with a high induction rate that minimizes stratification in large spaces. They can operate with a temperature differential of up to up to 22°F (12°C) and provide optimum performance with both variable and constant air flow.

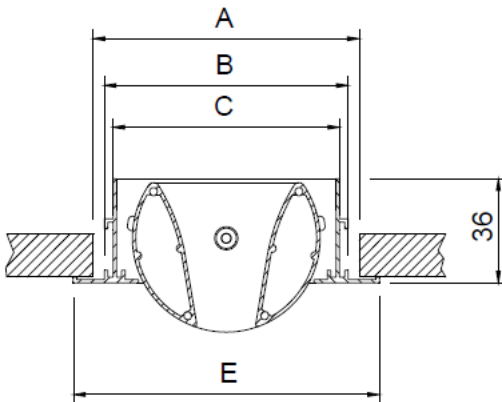


KOBE Imperial Dimensions

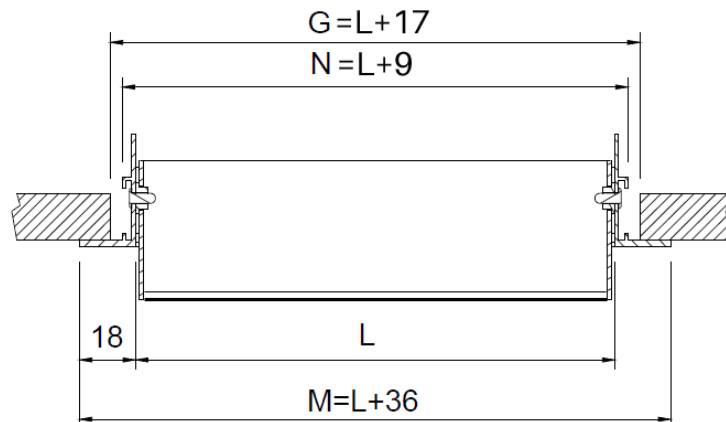
Slot Width	A	B	C	B
15 (0.6")	3 11/16"	3 21/64"	3 3/32"	4 11/64"
20 (0.8")	3 11/16"	3 21/64"	3 3/32"	4 11/64"
25 (1")	3 11/16"	3 21/64"	3 3/32"	4 11/64"
30 (1.2")	3 11/16"	3 21/64"	3 3/32"	4 11/64"
40 (1.6")	4 15/64"	3 7/8"	3 41/64"	4 23/32"
50 (2")	4 43/64"	4 5/16"	4 5/64"	5 5/32"



KOBE Metric Dimensions



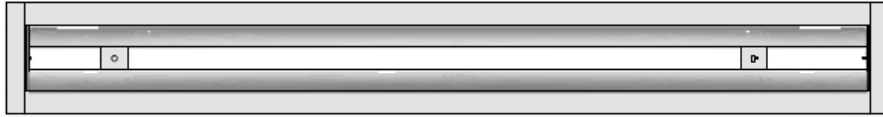
Slot Width	A	B	C	B
15	93.5	84.5	78.5	106
20	93.5	84.5	78.5	106
25	93.5	84.5	78.5	106
30	93.5	84.5	78.5	106
40	107.5	98.5	92.5	120
50	118.5	109.5	103.5	131



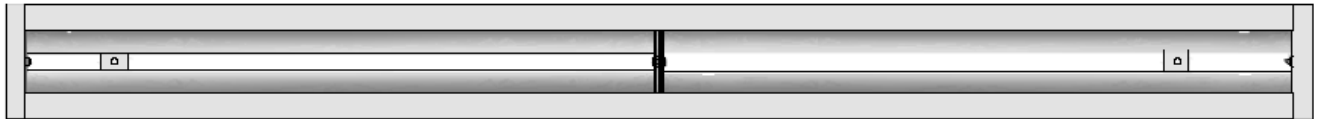
KOBE Nozzle Sections



Single Nozle
 $12'' \leq L \leq 40''$



Split Nozle
 $44'' \leq L \leq 79''$

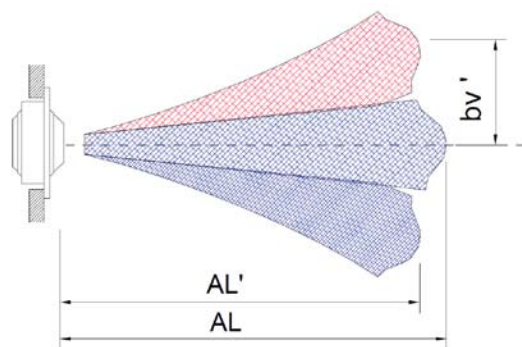


KOBE Performance Data - Horizontal Throw

15 0.6"	CFM / Linear Foot	10	30	50	70	90	110	130
	Pressure Loss (in.w.g.)	0.01	0.04	0.1	0.2	0.3	0.4	0.6
	NC	< 15	< 15	< 20	< 25	< 30	< 35	> 40
	Throw (ft) - Coanda Effect	5-8-12	13-23-33	23-37-55	31-51-76	39-65-97	47-78-117	56-92-138
	Throw (ft) - No Ceiling Effect	4-6-9	10-17-25	17-28-41	23-38-57	29-49-73	35-59-88	42-69-104
20 0.8"	CFM / Linear Foot	15	45	75	105	135	165	195
	Pressure Loss (in.w.g.)	0.01	0.04	0.1	0.2	0.3	0.4	0.6
	NC	< 15	< 15	< 20	< 30	< 35	> 40	> 40
	Throw (ft) - Coanda Effect	8-10-16	17-29-44	29-48-73	40-67-100	51-85-128	63-104-154	73-121-182
	Throw (ft) - No Ceiling Effect	6-8-12	13-22-33	22-36-55	30-50-75	38-64-96	47-78-116	55-91-137
25 1"	CFM / Linear Foot	20	60	100	140	180	220	260
	Pressure Loss (in.w.g.)	0.01	0.04	0.1	0.2	0.3	0.4	0.5
	NC	< 15	< 15	< 20	< 30	< 35	> 40	> 40
	Throw (ft) - Coanda Effect	7-12-17	20-35-51	33-56-84	47-77-116	59-97-146	72-118-178	84-140-209
	Throw (ft) - No Ceiling Effect	5-9-13	15-26-38	25-42-63	35-58-87	44-73-110	54-89-134	63-105-157
30 1.2"	CFM / Linear Foot	20	65	110	155	200	245	290
	Pressure Loss (in.w.g.)	0.004	0.03	0.1	0.1	0.2	0.3	0.4
	NC	< 15	< 15	< 20	< 25	< 30	> 40	> 40
	Throw (ft) - Coanda Effect	5-9-15	17-29-45	29-49-74	41-69-104	53-88-132	64-106-161	76-125-189
	Throw (ft) - No Ceiling Effect	4-7-11	13-22-34	22-37-56	31-52-78	40-66-99	48-80-121	57-94-142
40 1.6"	CFM / Linear Foot	25	90	155	220	285	350	415
	Pressure Loss (in.w.g.)	0.002	0.03	0.1	0.2	0.4	0.5	0.8
	NC	< 15	< 15	< 20	< 30	< 35	> 40	> 40
	Throw (ft) - Coanda Effect	5-9-13	21-36-53	39-64-96	56-93-140	73-122-184	92-152-229	109-182-274
	Throw (ft) - No Ceiling Effect	4-7-10	16-27-40	29-48-72	42-70-105	55-92-138	69-114-172	82-137-206
50 2"	CFM / Linear Foot	35	110	185	260	335	410	485
	Pressure Loss (in.w.g.)	0.003	0.03	0.1	0.2	0.3	0.5	0.7
	NC	< 15	< 15	< 20	< 25	< 30	> 40	> 40
	Throw (ft) - Coanda Effect	7-11-17	23-37-57	40-65-98	57-94-141	74-124-185	92-153-230	110-184-275
	Throw (ft) - No Ceiling Effect	5-8-13	17-28-43	30-49-74	43-71-106	56-93-139	69-115-173	83-138-207

- NC value based on 10 db room attenuation

- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively



$AL' = AL \times Kh$
 $bv' = AL \times Kv$

Kh = Correction Factor for Vertical Diffusion
 Kl = Throw Correction Factor
 AL = Throw

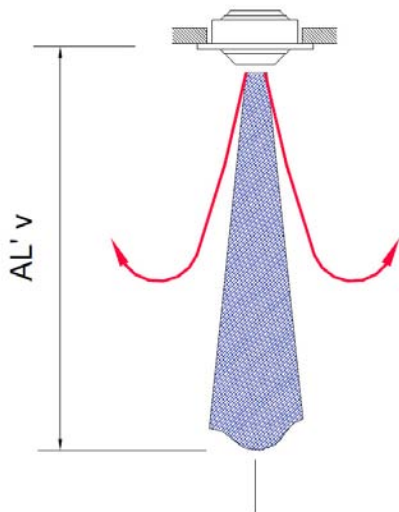
Δ T (F)	Kh	Kv (15, 20, 25, 30)	Kv (40, 50)
-25	-0.84	-0.49	-0.63
-20	-0.87	-0.4	-0.51
-15	-0.91	-0.3	-0.38
-10	-0.935	-0.2	-0.25
-5	-0.97	-0.1	-0.13
0	1	0	0
5	0.97	0.1	0.13
10	0.935	0.2	0.25
15	0.91	0.3	0.38
20	0.87	0.4	0.51
25	0.84	0.49	0.63

KOBE Performance Data - Vertical Throw

15 0.6"	CFM / Linear Foot	10	30	50	70	90	110	130
	Pressure Loss (in.w.g.)	0.01	0.04	0.1	0.2	0.3	0.4	0.6
	NC	< 15	< 15	< 20	< 25	< 30	< 35	> 40
	Throw (ft) - Coanda Effect	4-7-11	12-20-31	20-33-51	28-47-69	36-59-88	43-72-106	51-84-126
	Throw (ft) - No Ceiling Effect	3-5-8	9-15-23	15-25-38	21-35-52	27-44-66	32-54-80	38-63-95
20 0.8"	CFM / Linear Foot	15	45	75	105	135	165	195
	Pressure Loss (in.w.g.)	0.01	0.04	0.1	0.2	0.3	0.4	0.6
	NC	< 15	< 15	< 20	< 30	< 35	> 40	> 40
	Throw (ft) - Coanda Effect	5-9-15	16-27-40	27-44-67	36-61-92	47-77-116	56-94-141	67-110-165
	Throw (ft) - No Ceiling Effect	4-7-11	12-20-30	20-33-50	27-46-69	35-58-87	42-71-106	50-83-124
25 1"	CFM / Linear Foot	20	60	100	140	180	220	260
	Pressure Loss (in.w.g.)	0.01	0.04	0.1	0.2	0.3	0.4	0.5
	NC	< 15	< 15	< 20	< 30	< 35	> 40	> 40
	Throw (ft) - Coanda Effect	7-11-16	19-31-47	31-51-76	43-70-105	53-89-133	65-108-162	76-126-190
	Throw (ft) - No Ceiling Effect	5-8-12	14-23-35	23-38-57	32-53-79	40-67-100	49-81-122	57-95-143
30 1.2"	CFM / Linear Foot	20	65	110	155	200	245	290
	Pressure Loss (in.w.g.)	0.004	0.03	0.1	0.1	0.2	0.3	0.4
	NC	< 15	< 15	< 20	< 25	< 30	> 40	> 40
	Throw (ft) - Coanda Effect	5-9-13	16-27-41	27-45-68	37-63-94	48-80-120	59-97-146	69-114-172
	Throw (ft) - No Ceiling Effect	4-7-10	12-20-31	20-34-51	28-47-71	36-60-90	44-73-110	52-86-129
40 1.6"	CFM / Linear Foot	25	90	155	220	285	350	415
	Pressure Loss (in.w.g.)	0.002	0.03	0.1	0.2	0.4	0.5	0.8
	NC	< 15	< 15	< 20	< 30	< 35	> 40	> 40
	Throw (ft) - Coanda Effect	5-8-12	19-31-45	33-55-82	48-78-118	63-104-156	77-129-194	93-156-233
	Throw (ft) - No Ceiling Effect	4-6-9	14-23-34	25-41-62	36-59-89	47-78-117	58-97-146	70-117-175
50 2"	CFM / Linear Foot	35	110	185	260	335	410	485
	Pressure Loss (in.w.g.)	0.003	0.03	0.1	0.2	0.3	0.5	0.7
	NC	< 15	< 15	< 20	< 25	< 30	> 40	> 40
	Throw (ft) - Coanda Effect	5-9-15	19-32-48	33-56-84	48-80-120	63-105-158	78-130-196	93-156-234
	Throw (ft) - No Ceiling Effect	4-7-11	14-24-36	25-42-63	36-60-90	47-79-119	59-98-147	70-117-176

- NC value based on 10 db room attenuation

- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

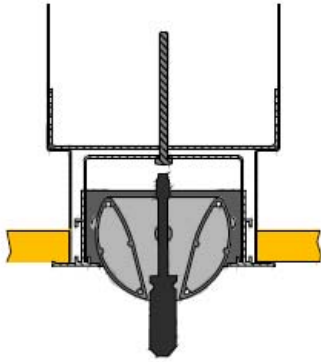


$$AL'v = \text{Throw} \times Kx$$

Delta T Correction Factor For Vertical Throw	
Δ T (F)	Kx
-25	1.445
-20	1.355
-15	1.27
-10	1.18
-5	1.09
0	1
5	0.915
10	0.82
15	0.73
20	0.645
25	0.555

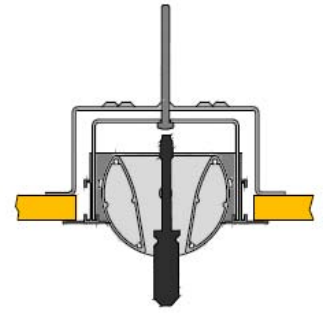
PL Mounting

PLKB-PL Plenum Mounting Clips



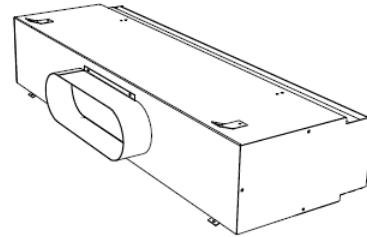
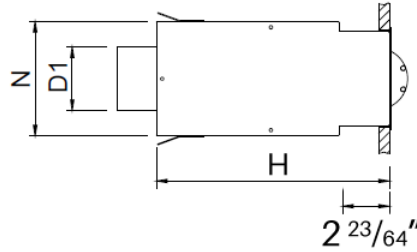
PM Mounting

Mounting Clips for PLKB-PM Plenum or no plenum

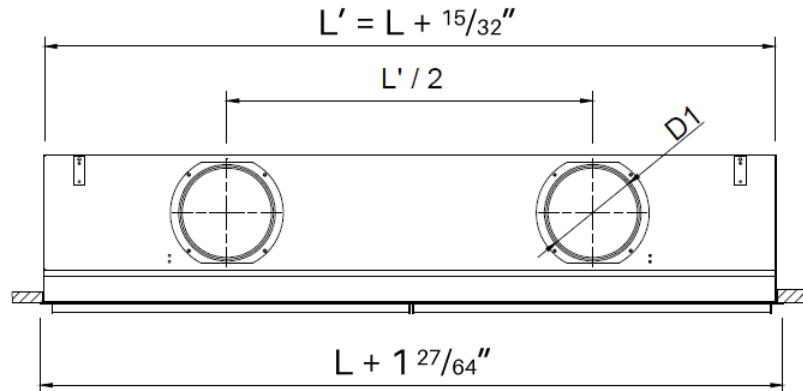


PLKB-PL Plenum

PLKB-T-PL



PLKB-S-PL

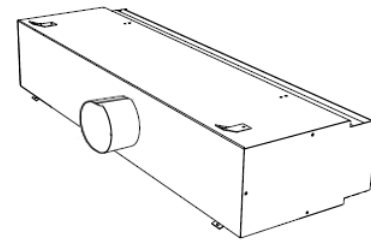
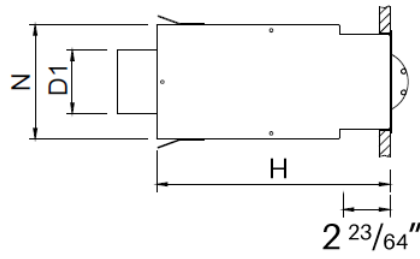


PLKB-PL	N	11 13/16 ≤ L ≤ 23 5/8		23 5/8 < L ≤ 39 3/8		39 3/8 < L ≤ 59 1/16		59 1/16 < L ≤ 78 47/64	
		D1	H	D1	H	D1	H	D1	H
KOBE 15	4 3/8	5 7/8	9 39/64	5 7/8	9 39/64	(2x) 5 7/8	9 39/64	(2x) 5 7/8	9 39/64
KOBE 20	4 3/8	5 7/8	9 39/64	5 7/8	9 39/64	(2x) 5 7/8	9 39/64	(2x) 7 7/8	11 3/16
KOBE 25	4 3/8	5 7/8	9 39/64	7 7/8	11 3/16	(2x) 7 7/8	11 3/16	(2x) 7 7/8	11 3/16
KOBE 30	4 3/8	7 7/8	11 3/16	7 7/8	11 3/16	(2x) 7 7/8	11 3/16	(2x) 7 7/8	11 3/16
KOBE 40	4 59/64	7 7/8	11 3/16	7 7/8	11 3/16	(2x) 7 7/8	11 3/16	(2x) 9 7/8	13 5/32
KOBE 50	5 5/16	7 7/8	11 3/16	7 7/8	11 3/16	(2x) 9 7/8	13 5/32	(2x) 9 7/8	13 5/32

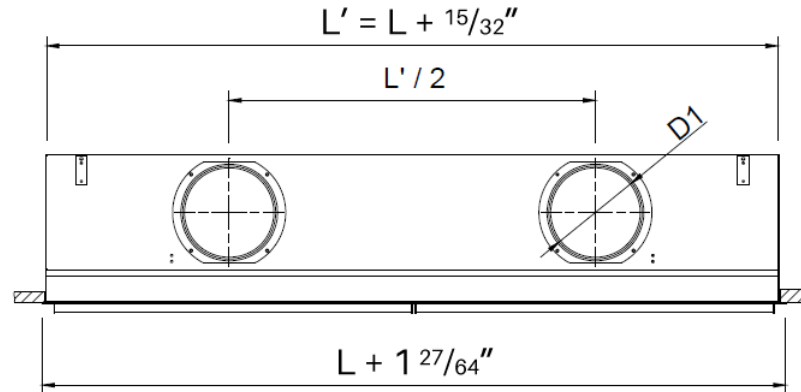
All dimensions in inches

PLKB-PM Plenum

PLKB-T-PM



PLKB-S-PM



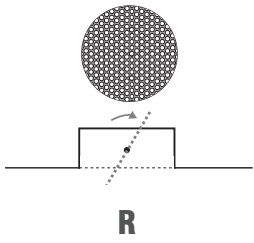
PLKB-S-PM	N	L ≤ 24		24 < L ≤ 36		36 < L ≤ 48		48 < L ≤ 60		60 < L ≤ 78 ⁴⁷ / ₆₄	
		D1	H	D1	H	D1	H	D1	H	D1	H
KOBE 15	5	5 ⁷ / ₈	9 ³⁹ / ₆₄	5 ⁷ / ₈	9 ³⁹ / ₆₄	5 ⁷ / ₈	9 ³⁹ / ₆₄	(2x) 5 ⁷ / ₈	9 ³⁹ / ₆₄	(2x) 5 ⁷ / ₈	9 ³⁹ / ₆₄
KOBE 20	5	5 ⁷ / ₈	9 ³⁹ / ₆₄	5 ⁷ / ₈	9 ³⁹ / ₆₄	7 ⁷ / ₈	11 ³ / ₁₆	(2x) 5 ⁷ / ₈	11 ³ / ₁₆	(2x) 7 ⁷ / ₈	11 ³ / ₁₆
KOBE 25	5	5 ⁷ / ₈	9 ³⁹ / ₆₄	7 ⁷ / ₈	11 ³ / ₁₆	7 ⁷ / ₈	11 ³ / ₁₆	(2x) 7 ⁷ / ₈	11 ³ / ₁₆	(2x) 7 ⁷ / ₈	11 ³ / ₁₆
KOBE 30	5	7 ⁷ / ₈	11 ³ / ₁₆	7 ⁷ / ₈	11 ³ / ₁₆	7 ⁷ / ₈	11 ³ / ₁₆	(2x) 7 ⁷ / ₈	11 ³ / ₁₆	(2x) 7 ⁷ / ₈	11 ³ / ₁₆
KOBE 40	5 ³ / ₄	7 ⁷ / ₈	11 ³ / ₁₆	7 ⁷ / ₈	11 ³ / ₁₆	9 ⁷ / ₈	13 ⁵ / ₃₂	(2x) 7 ⁷ / ₈	13 ⁵ / ₃₂	(2x) 9 ⁷ / ₈	13 ⁵ / ₃₂
KOBE 50	6	7 ⁷ / ₈	11 ³ / ₁₆	7 ⁷ / ₈	11 ³ / ₁₆	9 ⁷ / ₈	13 ⁵ / ₃₂	(2x) 9 ⁷ / ₈	13 ⁵ / ₃₂	(2x) 9 ⁷ / ₈	13 ⁵ / ₃₂

All dimensions in inches

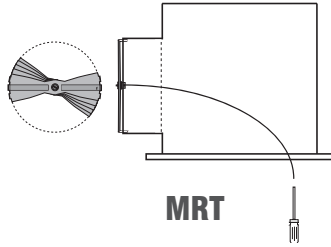
PLKB-T-PM	H	L ≤ 24		24 < L ≤ 36		36 < L ≤ 48		48 < L ≤ 60		60 < L ≤ 78 ⁴⁷ / ₆₄	
		D1	N	D1	N	D1	N	D1	N	D1	N
KOBE 15	6 ⁷ / ₈	5 ⁷ / ₈	6 ⁷ / ₈	5 ⁷ / ₈	6 ⁷ / ₈	5 ⁷ / ₈	6 ⁷ / ₈	(2x) 5 ⁷ / ₈	6 ⁷ / ₈	(2x) 5 ⁷ / ₈	6 ⁷ / ₈
KOBE 20	6 ⁷ / ₈	5 ⁷ / ₈	6 ⁷ / ₈	5 ⁷ / ₈	6 ⁷ / ₈	7 ⁷ / ₈	8 ⁷ / ₈	(2x) 5 ⁷ / ₈	6 ⁷ / ₈	(2x) 7 ⁷ / ₈	8 ⁷ / ₈
KOBE 25	6 ⁷ / ₈	5 ⁷ / ₈	6 ⁷ / ₈	7 ⁷ / ₈	8 ⁷ / ₈	7 ⁷ / ₈	8 ⁷ / ₈	(2x) 7 ⁷ / ₈	8 ⁷ / ₈	(2x) 7 ⁷ / ₈	8 ⁷ / ₈
KOBE 30	6 ⁷ / ₈	7 ⁷ / ₈	8 ⁷ / ₈	7 ⁷ / ₈	8 ⁷ / ₈	7 ⁷ / ₈	8 ⁷ / ₈	(2x) 7 ⁷ / ₈	8 ⁷ / ₈	(2x) 7 ⁷ / ₈	8 ⁷ / ₈
KOBE 40	7 ⁷ / ₈	7 ⁷ / ₈	8 ⁷ / ₈	7 ⁷ / ₈	8 ⁷ / ₈	9 ⁷ / ₈	10 ⁷ / ₈	(2x) 7 ⁷ / ₈	10 ⁷ / ₈	(2x) 9 ⁷ / ₈	10 ⁷ / ₈
KOBE 50	7 ⁷ / ₈	7 ⁷ / ₈	8 ⁷ / ₈	7 ⁷ / ₈	8 ⁷ / ₈	9 ⁷ / ₈	10 ⁷ / ₈	(2x) 9 ⁷ / ₈	10 ⁷ / ₈	(2x) 9 ⁷ / ₈	10 ⁷ / ₈

All dimensions in inches

Integrated Air Volume Dampers



R
Perforated damper +
air equalizer



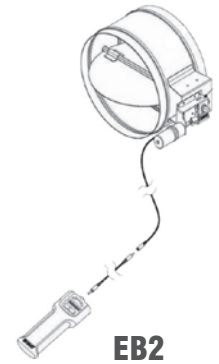
MRT
Manually operated
damper, cable inside
the plenum, adjustment
through face



MRT2
Manually operated damper,
cable through drywall with
termination fixture



EB
Battery operated
electro-balance damper
with remote control,
cable through face



EB2
Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Important Note: R, MRT, MRT2, EB and EB2 Damper Options are only available with PLKB-PM

Accessories

EB-SP1

Single Connector
Drywall
Termination Fixture
for EB dampers



EB-AB8

Eight Connector
Wall Bracket for EB
dampers



EB-SP8

Eight Connector
Drywall
Termination Fixture
for EB dampers



EB-REMOTE

Remote Control for
EB dampers



How to Specify KOBE Series

Supply and mounting of model KOBE adjustable long throw linear jet diffuser. Available in six different slot widths. Made in aluminum, powder coated in white M9016. Supply with PLKB plenum and concealed mounting system. By EffectiV HVAC / MADEL.

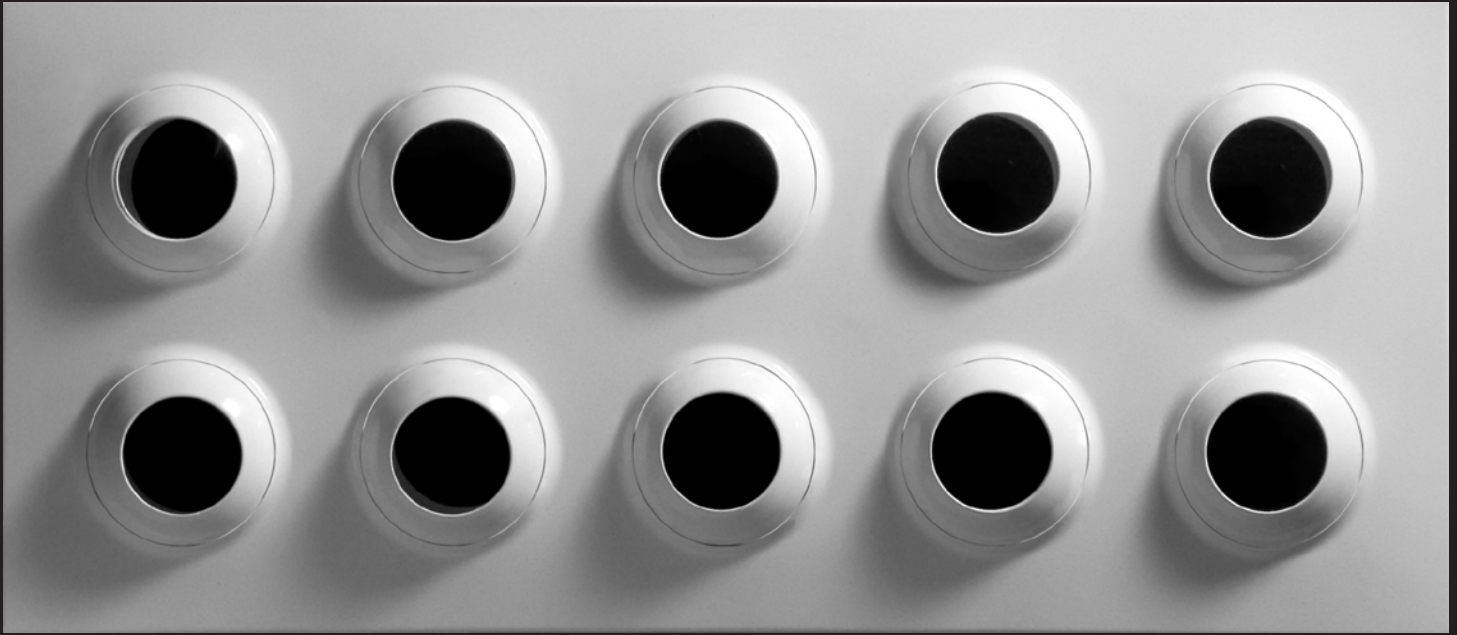
How to Order KOBE Series

KOBE	-PM	20	1200	/M9016	+ PLKB-S-PM 20 1200
			Finish	/M9016	White (RAL 9016 Traffic White)
				/RAL	Other RAL finish, please specify
		Length	Nominal length in mm or inches		
		Slot Width	15, 20, 25, 30, 40, 50		
	Mounting		-PM	Concealed bracket	
			-PL	Concealed spring clips	





KOO



KOO

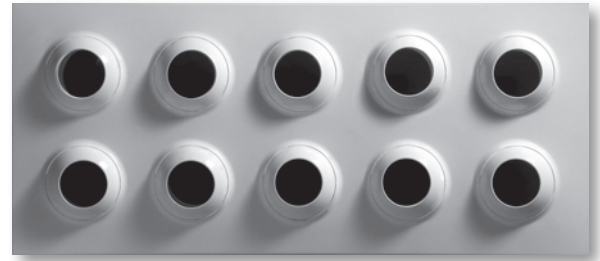
Adjustable Long Throw Multi-Nozzle Jet Diffusers

EFFECTIVE  TM

July 19 2022









KOO SERIES

Long Throw Multi-Jet Nozzle Diffusers



KOO
by **MADEL®**

PATENTED

-  Each jet nozzle can be adjusted manually
-  Long throw ideal for large rooms or high ceilings
-  Also possibility of wide spread to cover large windows from a distance
-  Architecturally appealing lines and finish
-  Clip mounting system available with PLRX plenum, great for drywall mounting without apparent screws
-  IEK adaptor available for direct mounting on round duct
-  Nozzles constructed from aluminium and panel from galvanised steel
-  Seal of rotation made of immutable material, classified M1 and F2 as regards fire and smoke safety

KOO Long Throw Multi-Jet Nozzle Diffusers by EffectiV HVAC™ and MADEL® are designed to be used in air conditioning, ventilation and heating systems at a temperature differential up to 22°F (12°C). They can be mounted in the wall or the ceiling.

KOO diffusers respond to different functional and architectural requirements, thanks to their manually adjustable nozzles in all directions. Two nozzle jet diameters are available. Depending on the size of the rectangular panel, the integrated nozzles diameter can either be 3 5/32" (80 mm) or 4 59/64" (125 mm).

Thanks to its long throw and flexibility of direction of the air pattern, KOO is suitable for air diffusion in all kinds of different architectures. It provides a high induction air rate level, reducing stratification.

The KOO Long Throw Multi-Jet Nozzle Diffusers represent a vanguard in design of air diffusers. Integrating one or two rows of jet nozzles into a long panel, the outcome is a smooth and homogeneous surface reducing the visual impact on interior architecture.



Some Applications



Large Pools and Aquatic Centers



Restaurants, Bars, Hotels, Lobbies



Stores and Outlets



Libraries



Theaters



Gymnasiums & Training Facilities



Hallways



Large spaces or high ceilings



Available Models

3 5/32" (80 mm) Nozzle Diameter

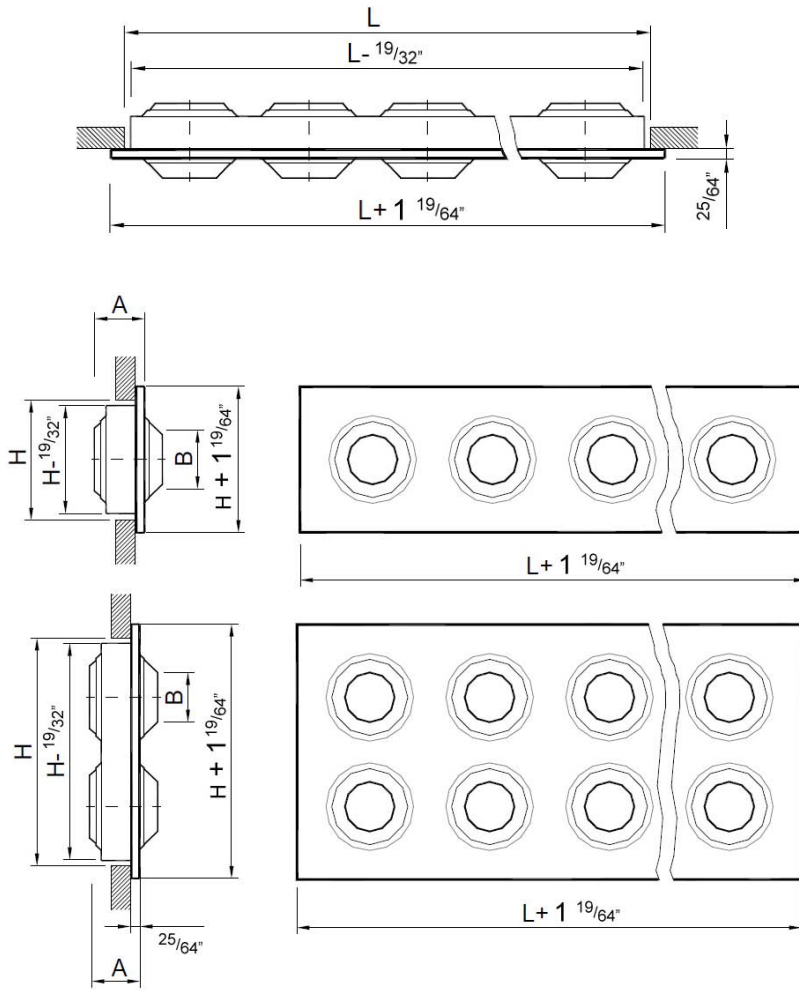
Imperial List Size	Metric List Size	Nozzles Qty	Free Area (sqf)	Min cfm	Max cfm
8 x 4	200 x 100	2 x 1	0.03	15	82
12 x 4	300 x 100	3 x 1	0.046	23	124
16 x 4	400 x 100	4 x 1	0.061	30	159
20 x 4	500 x 100	5 x 1	0.078	38	194
24 x 4	600 x 100	6 x 1	0.093	45	221
28 x 4	700 x 100	7 x 1	0.108	53	247
32 x 4	800 x 100	8 x 1	0.123	61	273
36 x 4	900 x 100	9 x 1	0.139	68	300
40 x 4	1000 x 100	10 x 1	0.155	76	326
8 x 8	200 x 200	2 x 2	0.061	30	156
12 x 8	300 x 200	3 x 2	0.093	45	235
16 x 8	400 x 200	4 x 2	0.123	61	306
20 x 8	500 x 200	5 x 2	0.155	76	376
24 x 8	600 x 200	6 x 2	0.185	91	423
28 x 8	700 x 200	7 x 2	0.215	106	468
32 x 8	800 x 200	8 x 2	0.237	116	512
36 x 8	900 x 200	9 x 2	0.278	136	559
40 x 8	1000 x 200	10 x 2	0.31	152	603

4 59/64" (125 mm) Nozzle Diameter

Imperial List Size	Metric List Size	Nozzles Qty	Free Area (sqf)	Min cfm	Max cfm
12 x 6	300 x 150	2 x 1	0.06	29	147
18 x 6	450 x 150	3 x 1	0.09	45	218
24 x 6	600 x 150	4 x 1	0.121	59	291
30 x 6	750 x 150	5 x 1	0.151	74	347
36 x 6	900 x 150	6 x 1	0.181	89	400
42 x 6	1050 x 150	7 x 1	0.211	104	453
48 x 6	1200 x 150	8 x 1	0.241	119	506
12 x 12	300 x 300	2 x 2	0.121	59	256
18 x 12	450 x 300	3 x 2	0.181	89	382
24 x 12	600 x 300	4 x 2	0.241	119	512
30 x 12	750 x 300	5 x 2	0.301	148	650
36 x 12	900 x 300	6 x 2	0.362	178	788
42 x 12	1050 x 300	7 x 2	0.422	208	926
48 x 12	1200 x 300	8 x 2	0.482	237	1065

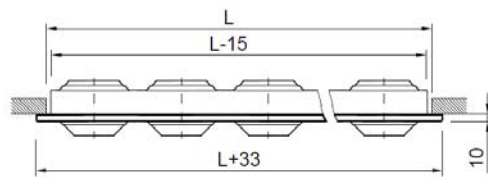
Min cfm and Max cfm are recommended minimum and maximum in general. Products can perform well below and above recommended cfm, depending on the Pressure Loss, NC and Throws that are acceptable for your application.

K00 Imperial Dimensions

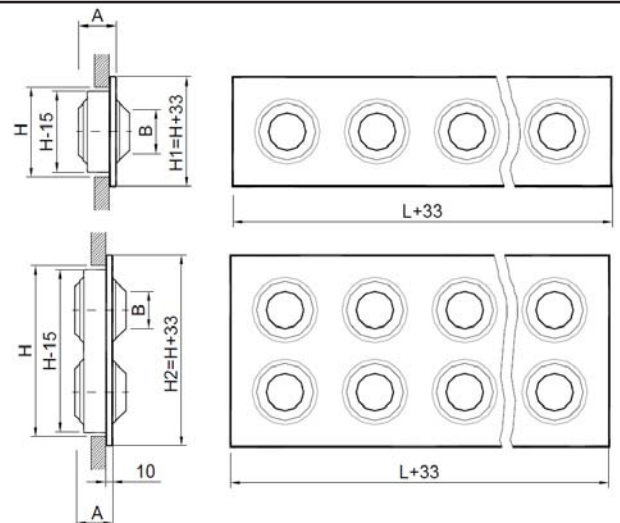


Imperial List Size	L	H	A	B
8 x 4	7 7/8"	3 15/16"	1 3/8"	1 47/64"
12 x 4	11 13/16"	3 15/16"	1 3/8"	1 47/64"
16 x 4	15 3/4"	3 15/16"	1 3/8"	1 47/64"
20 x 4	19 11/16"	3 15/16"	1 3/8"	1 47/64"
24 x 4	23 5/8"	3 15/16"	1 3/8"	1 47/64"
28 x 4	27 9/16"	3 15/16"	1 3/8"	1 47/64"
32 x 4	31 1/2"	3 15/16"	1 3/8"	1 47/64"
36 x 4	35 7/16"	3 15/16"	1 3/8"	1 47/64"
40 x 4	39 3/8"	3 15/16"	1 3/8"	1 47/64"
8 x 8	7 7/8"	7 7/8"	1 3/8"	1 47/64"
12 x 8	11 13/16"	7 7/8"	1 3/8"	1 47/64"
16 x 8	15 3/4"	7 7/8"	1 3/8"	1 47/64"
20 x 8	19 11/16"	7 7/8"	1 3/8"	1 47/64"
24 x 8	23 5/8"	7 7/8"	1 3/8"	1 47/64"
28 x 8	27 9/16"	7 7/8"	1 3/8"	1 47/64"
32 x 8	31 1/2"	7 7/8"	1 3/8"	1 47/64"
36 x 8	35 7/16"	7 7/8"	1 3/8"	1 47/64"
40 x 8	39 3/8"	7 7/8"	1 3/8"	1 47/64"
12 x 6	11 13/16"	5 29/32"	2 1/4"	2 13/32"
18 x 6	17 23/32"	5 29/32"	2 1/4"	2 13/32"
24 x 6	23 5/8"	5 29/32"	2 1/4"	2 13/32"
30 x 6	29 17/32"	5 29/32"	2 1/4"	2 13/32"
36 x 6	35 7/16"	5 29/32"	2 1/4"	2 13/32"
42 x 6	41 11/32"	5 29/32"	2 1/4"	2 13/32"
48 x 6	47 1/4"	5 29/32"	2 1/4"	2 13/32"
12 x 12	11 13/16"	11 13/16"	2 1/4"	2 13/32"
18 x 12	17 23/32"	11 13/16"	2 1/4"	2 13/32"
24 x 12	23 5/8"	11 13/16"	2 1/4"	2 13/32"
30 x 12	29 17/32"	11 13/16"	2 1/4"	2 13/32"
36 x 12	35 7/16"	11 13/16"	2 1/4"	2 13/32"
42 x 12	41 11/32"	11 13/16"	2 1/4"	2 13/32"
48 x 12	47 1/4"	11 13/16"	2 1/4"	2 13/32"

Metric Dimensions



H	A	B
100	35	44
150	61	57
200	35	44
300	61	57



K00 Performance Data - Straight Air Flow - Smaller Nozzles - 1 Row

8 x 4 (200 x 100)	CFM	15	30	45	60	75	90	115	130
	Pressure Loss (in.w.g.)	0.025	0.078	0.158	0.257	0.378	0.512	0.783	0.961
	NC	-	-	18	26	33	38	45	48
	Throw (ft) - Coanda Effect	6-10-15	12-19-29	17-29-43	22-37-56	28-46-69	33-54-82	41-69-103	46-77-115
	Throw (ft) - No Ceiling Effect	5-8-12	9-15-22	13-21-32	17-28-42	21-35-52	25-41-61	31-52-77	35-58-87
12 x 4 (300 x 100)	CFM	20	40	60	80	100	120	140	160
	Pressure Loss (in.w.g.)	0.018	0.058	0.117	0.191	0.28	0.382	0.497	0.625
	NC	-	-	15	23	29	34	39	42
	Throw (ft) - Coanda Effect	6-10-16	12-20-30	18-29-44	23-39-58	29-48-72	34-57-85	39-65-98	45-74-111
	Throw (ft) - No Ceiling Effect	5-8-12	9-15-23	13-22-33	17-29-44	21-36-54	25-42-64	29-49-74	33-56-84
16 x 4 (400 x 100)	CFM	25	50	75	100	125	150	175	200
	Pressure Loss (in.w.g.)	0.02	0.064	0.128	0.208	0.306	0.416	0.543	0.68
	NC	-	-	18	24	29	32	35	38
	Throw (ft) - Coanda Effect	7-11-17	13-22-32	19-32-48	25-42-62	31-51-77	37-61-91	42-71-106	48-80-120
	Throw (ft) - No Ceiling Effect	5-9-13	10-16-24	14-24-36	19-31-47	23-39-58	27-46-68	32-53-79	36-60-90
20 x 4 (500 x 100)	CFM	30	60	90	120	150	180	210	240
	Pressure Loss (in.w.g.)	0.018	0.059	0.117	0.192	0.281	0.384	0.5	0.628
	NC	-	-	18	24	29	33	37	40
	Throw (ft) - Coanda Effect	7-12-18	14-23-35	21-34-52	27-45-68	33-56-83	40-66-99	46-76-114	52-77-130
	Throw (ft) - No Ceiling Effect	5-9-14	11-18-26	15-26-39	20-34-51	25-42-62	30-49-74	34-57-86	39-57-97
24 x 4 (600 x 100)	CFM	40	80	120	160	200	240	280	320
	Pressure Loss (in.w.g.)	0.018	0.058	0.116	0.189	0.277	0.378	0.493	0.619
	NC	-	-	21	28	33	37	40	43
	Throw (ft) - Coanda Effect	10-16-24	18-31-46	27-45-68	35-59-88	44-73-109	52-86-130	60-100-150	68-113-170
	Throw (ft) - No Ceiling Effect	7-12-18	14-23-35	20-34-51	27-44-66	33-55-82	39-65-97	45-75-112	51-85-127
28 x 4 (700 x 100)	CFM	50	100	150	200	250	300	350	400
	Pressure Loss (in.w.g.)	0.02	0.064	0.129	0.21	0.308	0.42	0.547	0.688
	NC	-	17	26	32	37	41	44	47
	Throw (ft) - Coanda Effect	10-17-26	20-33-50	29-48-73	38-63-95	47-78-117	56-93-139	64-107-161	73-122-183
	Throw (ft) - No Ceiling Effect	8-13-19	15-25-37	22-36-54	29-48-71	35-59-88	42-70-104	48-80-121	55-91-137
32 x 4 (800 x 100)	CFM	60	120	180	240	300	360	420	480
	Pressure Loss (in.w.g.)	0.02	0.065	0.13	0.213	0.312	0.426	0.554	0.696
	NC	-	17	26	32	37	41	44	47
	Throw (ft) - Coanda Effect	11-19-28	21-36-54	31-52-79	41-69-103	51-85-127	60-101-151	70-116-174	79-132-198
	Throw (ft) - No Ceiling Effect	8-14-21	16-27-40	24-39-59	31-51-77	38-64-95	45-75-113	52-87-131	59-99-148
36 x 4 (900 x 100)	CFM	60	120	180	240	300	360	420	480
	Pressure Loss (in.w.g.)	0.016	0.053	0.106	0.173	0.253	0.346	0.45	0.566
	NC	-	15	24	30	35	39	42	45
	Throw (ft) - Coanda Effect	10-17-25	19-32-48	28-47-70	37-61-92	45-75-113	54-90-134	62-104-155	70-117-176
	Throw (ft) - No Ceiling Effect	7-12-19	14-24-36	21-35-52	28-46-69	34-57-85	40-67-101	47-78-117	53-88-132
40 x 4 (1000 x 100)	CFM	70	140	210	280	350	420	490	560
	Pressure Loss (in.w.g.)	0.018	0.057	0.114	0.187	0.274	0.375	0.488	0.613
	NC	-	16	25	32	37	41	44	47
	Throw (ft) - Coanda Effect	12-19-29	22-37-55	32-54-81	42-71-106	52-87-131	62-104-155	72-120-180	81-136-204
	Throw (ft) - No Ceiling Effect	9-14-22	17-28-41	24-40-61	32-53-80	39-65-98	47-78-117	54-90-135	61-102-153

- NC value based on 10 db room attenuation

- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

K00 Performance Data - Straight Air Flow - Smaller Nozzles - 2 Rows

8 x 8 (200 x 200)	CFM	30	60	90	120	150	180	210	240
	Pressure Loss (in.w.g.)	0.027	0.089	0.178	0.291	0.426	0.581	0.757	0.951
	NC	-	-	20	28	35	40	44	48
	Throw (ft) - Coanda Effect	8-13-20	15-26-39	23-38-56	30-49-74	37-61-91	43-72-108	50-84-125	57-95-142
	Throw (ft) - No Ceiling Effect	6-10-15	12-19-29	17-28-42	22-37-56	27-46-68	33-54-81	38-63-94	43-71-107
12 x 8 (300 x 200)	CFM	40	80	120	160	200	240	280	320
	Pressure Loss (in.w.g.)	0.018	0.058	0.116	0.189	0.277	0.378	0.493	0.619
	NC	-	-	21	27	32	35	39	41
	Throw (ft) - Coanda Effect	8-13-19	15-24-37	21-36-54	28-47-70	35-58-87	41-69-103	48-79-119	54-90-135
	Throw (ft) - No Ceiling Effect	6-10-14	11-18-27	16-27-40	21-35-53	26-43-65	31-51-77	36-59-89	40-67-101
16 x 8 (400 x 200)	CFM	50	100	150	200	250	300	400	500
	Pressure Loss (in.w.g.)	0.014	0.047	0.093	0.153	0.224	0.305	0.499	0.731
	NC	-	-	20	26	31	35	41	46
	Throw (ft) - Coanda Effect	9-16-24	18-30-45	26-44-66	35-58-87	43-71-107	51-85-127	67-111-166	82-137-205
	Throw (ft) - No Ceiling Effect	7-12-18	14-23-34	20-33-50	26-43-65	32-53-80	38-64-95	50-83-125	62-103-154
20 x 8 (500 x 200)	CFM	60	120	180	240	300	400	500	600
	Pressure Loss (in.w.g.)	0.013	0.044	0.088	0.144	0.211	0.345	0.506	0.45
	NC	-	-	20	26	31	37	42	46
	Throw (ft) - Coanda Effect	10-17-25	19-32-48	28-47-70	37-61-92	45-75-113	59-99-148	73-122-183	87-145-217
	Throw (ft) - No Ceiling Effect	7-12-19	14-24-36	21-35-52	28-46-69	34-57-85	45-74-111	55-92-137	65-109-163
24 x 8 (600 x 200)	CFM	70	140	210	280	350	420	500	600
	Pressure Loss (in.w.g.)	0.015	0.05	0.1	0.163	0.238	0.326	0.439	0.599
	NC	-	-	20	27	32	36	40	44
	Throw (ft) - Coanda Effect	10-17-25	19-32-48	28-47-70	37-62-92	46-76-114	54-90-135	64-106-159	76-126-189
	Throw (ft) - No Ceiling Effect	8-13-19	14-24-36	21-35-53	28-46-69	34-57-85	41-68-101	48-80-120	57-95-142
28 x 8 (700 x 200)	CFM	80	160	240	320	400	500	600	700
	Pressure Loss (in.w.g.)	0.019	0.062	0.125	0.204	0.299	0.439	0.599	0.78
	NC	-	-	21	27	32	37	41	45
	Throw (ft) - Coanda Effect	11-19-28	22-36-55	32-53-80	42-70-105	52-86-129	64-106-159	76-126-189	88-146-219
	Throw (ft) - No Ceiling Effect	9-14-21	16-27-41	24-40-60	31-52-79	39-65-97	48-80-120	57-95-142	66-109-164
32 x 8 (800 x 200)	CFM	100	200	300	400	500	600	700	800
	Pressure Loss (in.w.g.)	0.019	0.064	0.127	0.208	0.305	0.416	0.542	0.681
	NC	-	15	23	30	35	39	42	45
	Throw (ft) - Coanda Effect	13-21-32	25-41-61	36-60-90	47-79-118	58-97-145	69-115-173	80-133-200	91-151-226
	Throw (ft) - No Ceiling Effect	10-16-24	18-31-46	27-45-67	35-59-88	44-73-109	52-86-129	60-100-150	68-113-170
36 x 8 (900 x 200)	CFM	100	200	300	400	500	600	700	800
	Pressure Loss (in.w.g.)	0.016	0.051	0.102	0.167	0.244	0.334	0.434	0.546
	NC	-	-	21	27	32	36	40	43
	Throw (ft) - Coanda Effect	11-19-29	22-36-55	32-53-80	42-70-105	52-86-130	62-103-154	71-119-178	81-134-202
	Throw (ft) - No Ceiling Effect	9-14-21	16-27-41	24-40-60	32-53-79	39-65-97	46-77-115	53-89-133	61-101-151
40 x 8 (1000 x 200)	CFM	125	250	375	500	600	700	800	1000
	Pressure Loss (in.w.g.)	0.019	0.061	0.122	0.2	0.273	0.355	0.446	0.653
	NC	-	16	25	31	35	39	42	46
	Throw (ft) - Coanda Effect	13-21-31	24-40-60	35-59-88	46-77-115	55-91-137	63-106-159	72-120-180	89-148-222
	Throw (ft) - No Ceiling Effect	9-16-24	18-30-45	26-44-66	35-58-87	41-69-103	48-79-119	54-90-135	67-111-166

- NC value based on 10 db room attenuation

- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

K00 Performance Data - Straight Air Flow - Larger Nozzles - 1 Row



12 x 6 (300 x 150)	CFM	25	50	75	100	125	150	175	200
	Pressure Loss (in.w.g.)	0.012	0.042	0.09	0.152	0.231	0.323	0.431	0.551
	NC	-	-	20	26	31	35	39	42
	Throw (ft) - Coanda Effect	6-10-14	12-20-30	19-32-48	26-43-65	33-55-83	40-67-101	48-80-120	55-92-138
	Throw (ft) - No Ceiling Effect	4-7-11	9-15-23	14-24-36	19-32-49	25-41-62	30-50-76	36-60-90	41-69-104
18 x 6 (450 x 150)	CFM	40	80	120	160	200	240	280	320
	Pressure Loss (in.w.g.)	0.012	0.045	0.095	0.162	0.245	0.344	0.458	0.587
	NC	-	-	21	27	32	36	40	43
	Throw (ft) - Coanda Effect	7-12-17	15-25-37	23-38-57	31-52-78	40-67-100	49-81-122	58-96-145	67-111-167
	Throw (ft) - No Ceiling Effect	5-9-13	11-18-28	17-29-43	24-39-59	30-50-75	37-61-92	43-72-108	50-84-125
24 x 6 (600 x 150)	CFM	50	100	150	200	250	300	400	500
	Pressure Loss (in.w.g.)	0.012	0.042	0.089	0.152	0.23	0.322	0.55	0.833
	NC	-	-	21	27	32	36	42	47
	Throw (ft) - Coanda Effect	7-11-17	15-24-36	23-38-57	31-52-78	40-66-99	48-81-121	66-110-166	85-141-211
	Throw (ft) - No Ceiling Effect	5-9-13	11-18-27	17-28-43	23-39-58	30-50-74	36-60-91	50-83-124	63-106-158
30 x 6 (750 x 150)	CFM	60	120	180	240	300	400	500	600
	Pressure Loss (in.w.g.)	0.013	0.045	0.097	0.165	0.25	0.426	0.645	0.905
	NC	-	-	20	27	32	38	43	47
	Throw (ft) - Coanda Effect	7-12-17	15-25-37	23-38-58	32-53-79	40-67-101	55-92-138	70-117-176	86-143-214
	Throw (ft) - No Ceiling Effect	5-9-13	11-19-28	17-29-43	24-39-59	30-50-75	41-69-103	53-88-132	64-107-161
36 x 6 (900 x 150)	CFM	70	140	210	280	350	420	500	600
	Pressure Loss (in.w.g.)	0.013	0.046	0.097	0.166	0.252	0.353	0.488	0.685
	NC	-	-	21	27	32	36	40	44
	Throw (ft) - Coanda Effect	7-12-17	15-25-37	23-39-58	32-53-79	41-68-101	49-82-124	60-100-150	73-122-183
	Throw (ft) - No Ceiling Effect	5-9-13	11-19-28	17-29-44	24-40-60	30-51-76	37-62-93	45-75-112	55-91-137
42 x 6 (1050 x 150)	CFM	80	160	240	320	400	500	600	700
	Pressure Loss (in.w.g.)	0.012	0.043	0.092	0.157	0.238	0.36	0.506	0.673
	NC	-	-	21	27	32	37	41	44
	Throw (ft) - Coanda Effect	7-12-18	15-25-38	23-39-58	32-53-80	41-68-102	52-87-130	64-106-159	75-125-188
	Throw (ft) - No Ceiling Effect	5-9-13	11-19-28	18-29-44	24-40-60	31-51-77	39-65-98	48-80-119	56-94-141
48 x 6 (1200 x 150)	CFM	100	200	300	400	500	600	700	800
	Pressure Loss (in.w.g.)	0.013	0.046	0.098	0.167	0.252	0.354	0.471	0.604
	NC	-	15	23	30	35	39	42	45
	Throw (ft) - Coanda Effect	9-15-22	19-32-48	30-50-75	41-68-102	52-87-130	64-106-159	75-125-188	87-145-218
	Throw (ft) - No Ceiling Effect	7-11-17	14-24-36	22-37-56	31-51-77	39-65-98	48-80-119	56-94-141	65-109-163

- NC value based on 10 db room attenuation

- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

K00 Performance Data - Straight Air Flow - Larger Nozzles - 2 Rows

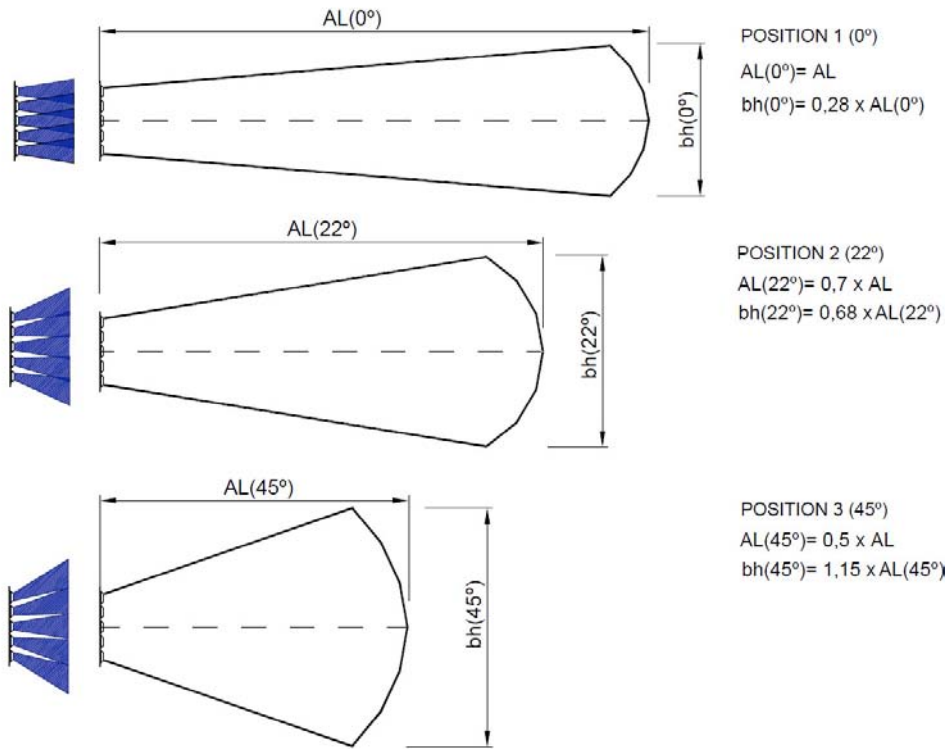
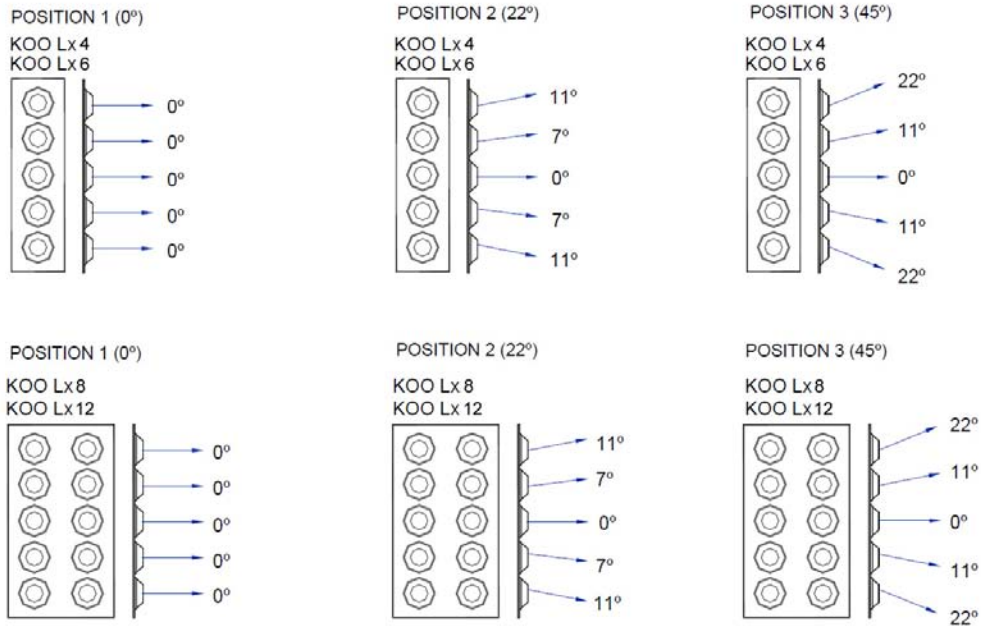


12 x 12 (300 x 300)	CFM	40	80	120	160	200	250	300	350
	Pressure Loss (in.w.g.)	0.008	0.028	0.059	0.1	0.152	0.23	0.322	0.429
	NC	-	-	19	25	30	35	39	42
	Throw (ft) - Coanda Effect	7-12-17	15-25-37	23-38-57	31-52-78	40-67-100	51-85-128	62-104-156	74-123-184
	Throw (ft) - No Ceiling Effect	5-9-13	11-18-28	17-29-43	24-39-59	30-50-75	38-64-96	47-78-117	55-92-138
18 x 12 (450 x 300)	CFM	75	150	225	300	375	450	525	600
	Pressure Loss (in.w.g.)	0.014	0.052	0.111	0.189	0.286	0.401	0.535	0.685
	NC	-	-	23	30	35	39	42	45
	Throw (ft) - Coanda Effect	9-15-22	19-31-47	29-49-74	40-67-101	51-86-128	63-104-157	74-124-185	86-143-214
	Throw (ft) - No Ceiling Effect	7-11-17	14-24-35	22-37-55	30-50-75	39-64-96	47-78-117	56-93-139	64-107-161
24 x 12 (600 x 300)	CFM	80	160	240	320	400	480	560	640
	Pressure Loss (in.w.g.)	0.008	0.03	0.064	0.11	0.167	0.234	0.311	0.399
	NC	-	-	17	23	28	32	35	38
	Throw (ft) - Coanda Effect	10-16-24	20-34-51	32-53-79	43-72-108	55-92-138	67-112-168	80-133-199	92-153-230
	Throw (ft) - No Ceiling Effect	7-12-18	15-25-38	24-39-59	32-54-81	41-69-103	50-84-126	60-99-149	69-115-173
30 x 12 (750 x 300)	CFM	100	200	300	400	500	600	700	800
	Pressure Loss (in.w.g.)	0.01	0.035	0.074	0.127	0.193	0.27	0.36	0.461
	NC	-	-	18	25	29	33	37	40
	Throw (ft) - Coanda Effect	9-15-22	19-32-48	30-50-75	41-68-102	52-87-130	64-106-159	75-125-188	87-145-218
	Throw (ft) - No Ceiling Effect	7-11-17	14-24-36	22-37-56	31-51-77	39-65-98	48-80-119	56-94-141	65-109-163
36 x 12 (900 x 300)	CFM	125	250	375	500	625	750	875	1000
	Pressure Loss (in.w.g.)	0.011	0.038	0.082	0.139	0.211	0.296	0.394	0.505
	NC	-	-	19	25	30	34	38	41
	Throw (ft) - Coanda Effect	9-15-23	19-32-49	30-50-76	41-69-103	53-88-132	64-107-161	76-127-191	88-147-221
	Throw (ft) - No Ceiling Effect	7-11-17	15-24-36	23-38-57	31-52-78	40-66-99	48-81-121	57-95-143	66-110-165
42 x 12 (1050 x 300)	CFM	150	300	450	600	750	900	1050	1200
	Pressure Loss (in.w.g.)	0.012	0.042	0.089	0.152	0.23	0.322	0.429	0.55
	NC	-	-	19	26	31	35	38	41
	Throw (ft) - Coanda Effect	11-19-28	24-40-59	37-61-92	51-84-126	64-107-161	79-131-197	93-155-233	108-179-269
	Throw (ft) - No Ceiling Effect	8-14-21	18-30-44	28-46-69	38-63-95	48-81-121	59-98-147	70-116-175	81-135-202
48 x 12 (1200 x 300)	CFM	200	400	600	800	1000	1200	1400	1600
	Pressure Loss (in.w.g.)	0.017	0.061	0.129	0.22	0.333	0.467	0.622	0.798
	NC	-	-	22	29	33	38	41	44
	Throw (ft) - Coanda Effect	14-23-34	29-48-72	45-75-113	62-103-154	79-131-197	96-160-240	113-189-284	131-219-329
	Throw (ft) - No Ceiling Effect	10-17-25	22-36-54	34-56-84	46-77-116	59-98-147	72-120-180	86-142-213	99-164-246

- NC value based on 10 db room attenuation

- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

KOO Performance Data - Airflow Spread Correction Factors

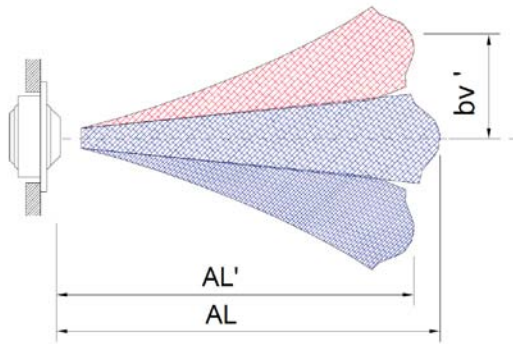


Calculation Example

We need to calculate the throw and spread for a KOO 48 12 configured at 45°, installed in the sidewall (no ceiling effect) and supplying 600 cfm of air.

Throw at 40 fpm terminal velocity: AL = 84 ft
Corrected throw for 45° angle: AL(45) = 84 x 0.5 = 42 ft
Spread for 45° angle: bh(45) = 42 x 1.15 = 48.3 ft

K00 Performance Data - Temperature Correction Factors



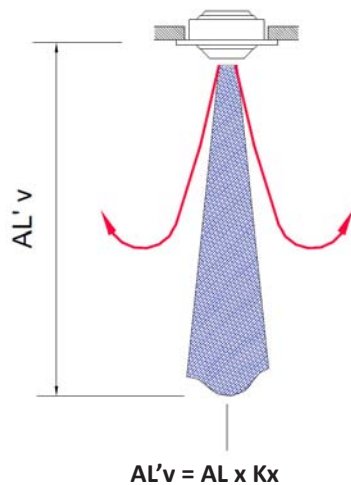
$$AL' = AL \times Kh$$

$$bv' = AL \times Kv$$

Kh = Throw Correction Factor
 Kv = Correction Factor for Vertical Diffusion
 AL = Throw

Delta T Correction Factors					
Δ T (F)	Kh	Kv1	Kv2	Kv3	Kv4
-25	0.84	-0.38	-0.49	-0.67	-0.79
-20	0.87	-0.36	-0.4	-0.505	-0.645
-15	0.91	-0.23	-0.295	-0.375	-0.48
-10	0.935	-0.16	-0.2	-0.26	-0.33
-5	0.97	-0.075	-0.1	-0.115	-0.155
0	1	0	0	0	0
5	0.97	0.075	0.1	0.115	0.155
10	0.935	0.16	0.2	0.26	0.33
15	0.91	0.23	0.295	0.375	0.48
20	0.87	0.36	0.4	0.505	0.645
25	0.84	0.38	0.49	0.67	0.79

Kv Factor Selection Based on Dimension			
Kv1	Kv2	Kv3	Kv4
8 x 4 (200x100)	20 x 4 (500x100)	32 x 4 (800x100)	28 x 4 (700x800)
12 x 4 (300x100)	24 x 4 (600x100)	36 x 4 (900x100)	32 x 8 (800x200)
16 x 4 (400x100)	28 x 4 (700x100)	40 x 4 (1000x100)	36 x 8 (900x200)
8 x 8 (200x200)	12 x 8 (300x200)	16 x 8 (400x200)	40 x 8 (1000x200)
12 x 6 (300x150)	18 x 6 (450x150)	20 x 8 (500x200)	42 x 6 (1050x150)
	24 x 6 (600x150)	24 x 8 (600x200)	48 x 6 (1200x150)
	12 x 12 (300x300)	30 x 6 (750x150)	24 x 12 (600x300)
		36 x 6 (900x150)	30 x 12 (750x300)
		18 x 12 (450x300)	36 x 12 (900x300)
			42 x 12 (1050x300)
			48 x 12 (1200x300)

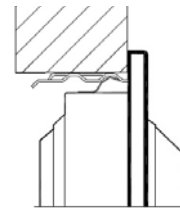


$$AL'v = AL \times Kx$$

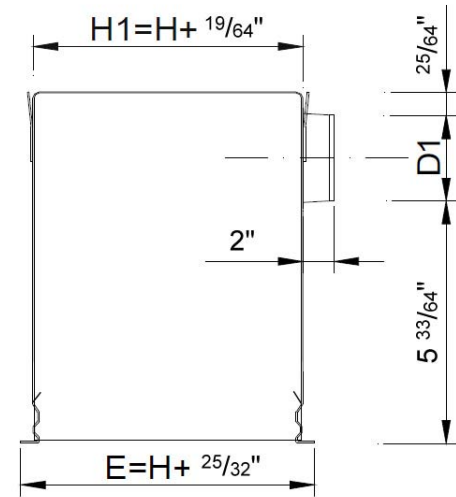
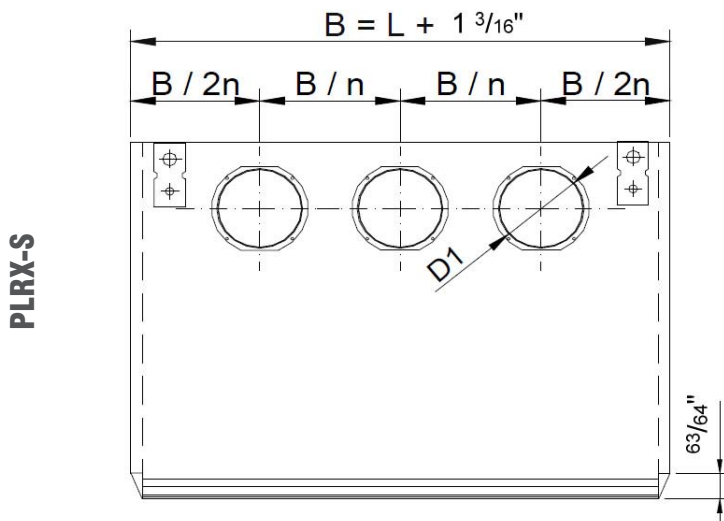
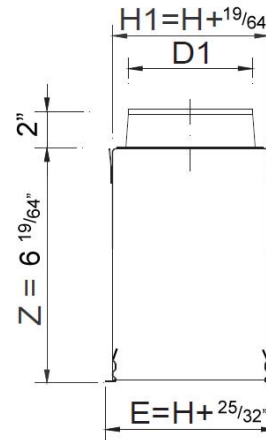
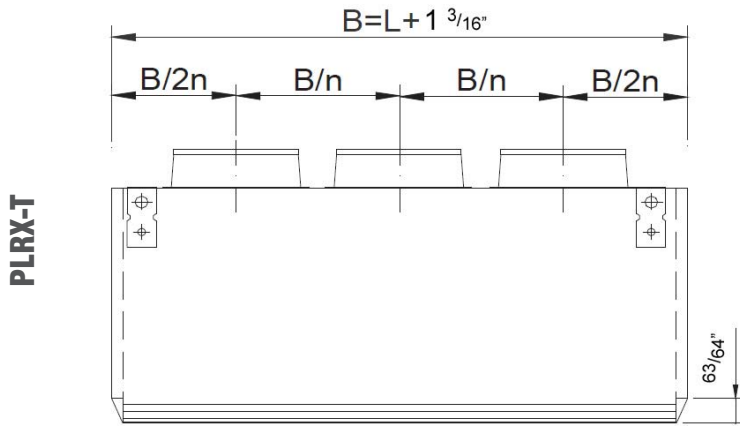
Delta T Correction Factor For Vertical Throw	
Δ T (F)	Kx
-25	1.445
-20	1.355
-15	1.27
-10	1.18
-5	1.09
0	1
5	0.915
10	0.82
15	0.73
20	0.645
25	0.555

K00 Spring Clips Mounting

Invisible fixing by means of pressure clips with security hooks for ceiling installation. Requires PLRX plenum or CM mounting frame.

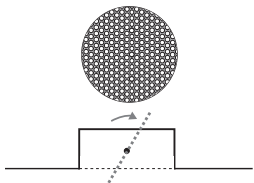


PLRX Plenum



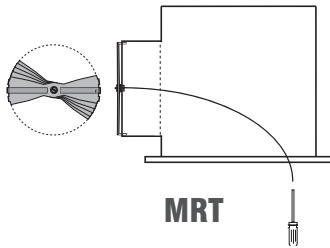
Neck Diameter and Quantity					
L	< 24"	< 36"	< 40"	< 48"	>= 48"
H	4"	1x 4"D	2x 4"D	2x 4"D	3x 4"D
	6"	1x 5"D	2x 5"D	2x 5"D	3x 5"D
	8"	1x 8"D	1x 8"D	2x 8"D	2x 8"D
	12"	1x 10"D	1x 10"D	1x 10"D	2x 10"D

Integrated Air Volume Dampers



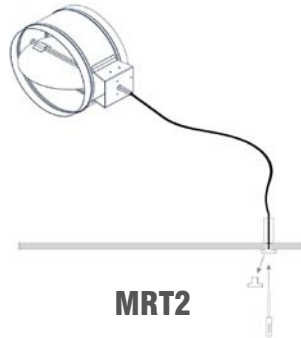
R

Perforated damper + air equalizer



MRT

Manually operated damper, cable inside the plenum, adjustment through face



MRT2

Manually operated damper, cable through drywall with termination fixture



EB

Battery operated electro-balance damper with remote control, cable through face



EB2

Battery operated electro-balance damper with remote control, cable through drywall with termination fixture

Note: MRT, MRT2, EB and EB2 Damper Options are only available for KOO with 2 rows (Height 8" and 12").

How to Specify KOO Series

Supply and mounting of model KOO adjustable long throw multi-jet nozzle diffuser. Each nozzle rotates independently to adjust direction of the airflow. Constructed from spun aluminum nozzles with galvanized steel face, powder coated in white M9016. Supply with PLRX plenum and concealed mounting clips. By EffectiV HVAC / MADEL.

How to Order KOO Series

KOO	-S	48	6	/M9016	+ PLRX-S-R 48 6
			Finish	/M9006	Metalllic Grey (RAL 9006 White Aluminum)
				/M9016	White (RAL 9016 Traffic White)
		Height	4, 6, 8, 12		
	Width	8, 12, 16, 18, 20, 24, 28, 30, 32, 36, 40, 42, 48			
Mounting	S	Invisible fixing by means of pressure clips			
	T	Visible screws			



LSD
High Induction Linear Slot Diffuser

EFFECTIVE  TM

LSD SERIES

High Induction Linear Slot Diffuser



LSD
by MADEL®



Each sector can be adjusted independently



Possibility of 1 way, 2 way, 2 way alternate or vertical air diffusion patterns, or hybrid combinations



Default 2 way alternate pattern creates high induction and allows 2 way diffusion even from a single slot



Architecturally appealing lines and finish



Invisible clip mounting system available with PLSD plenum, great for drywall mounting without apparent screws, very fast and secure



Can be joined to create long continuous diffusers, 90 degree corners also available



Diffuser constructed from aluminum with PVC adjustable curved blades



Available with white or black vanes

The LSD series High Induction Linear Slot Diffusers are designed to combine aesthetics with technical performance.

Available with 1 to 4 slots, LSD is suitable for both supply and return. Its 4" (100mm) long sectors are made of curved blades which can rotate independently to obtain a horizontal distribution of the air in one or two directions, or a vertical projection.

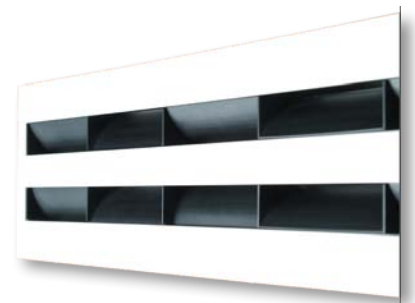
Its full adjustability and high induction ratio are what make LSD so unique. It can easily be adjusted to supply air in custom patterns when required, either to avoid specific people or objects, or to target windows and other sources of heat and cold.

Furthermore, its 2 way alternate pattern, which is the standard configuration, provides an airflow similar to other linear diffusers, yet providing a much higher induction ratio, meaning it mixes more room air with the same quantity of supplied air.

LSD's technology allows for high speed discharge of air with low acoustic noise.

It can be mounted in false ceilings or suspended from the ceiling. Multiple sections can be joined together to form continuous diffusers with active and inactive areas, without breaking the architectural lines. 90 degree angles are available for continuous designs.

LSD diffusers admit a flow variation of 60% while keeping the air stream stable. It can be used from 8.5 feet to 13 feet (2.6 up to 4 meters) high and at a temperature differential up to 22°F (12°C).



Some Applications



Fenestrated Walls



Hallways and Long Spaces



Commercial Spaces: Restaurants, Bars, Hotels, Lobbies, Stores, Outlets



Offices and Meeting Rooms



Schools and Classrooms



Gymnasiums & Training Facilities



Libraries



Theaters



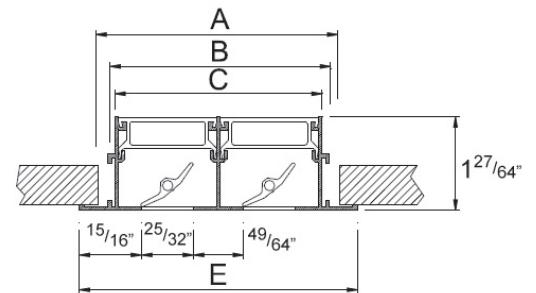
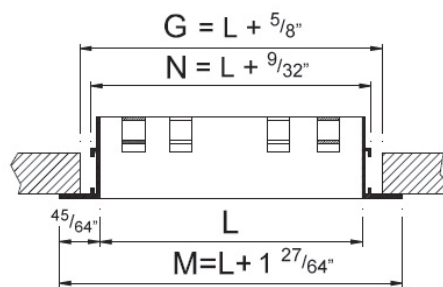
Clean Rooms



Server Rooms



LSD Dimensions

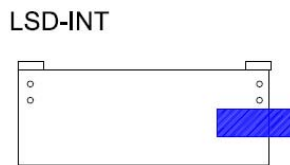
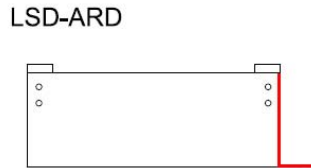
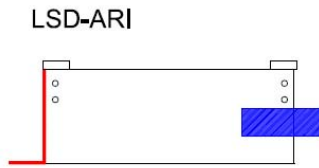


Nb Slots	E	A	B	C
1	2 43/64"	2 11/64"	1 27/32"	1 19/32"
2	4 7/32"	3 47/64"	3 25/64"	3 9/64"
3	5 49/64"	5 9/32"	4 15/16"	4 45/64"
4	7 5/16"	6 13/16"	6 31/64"	6 1/4"

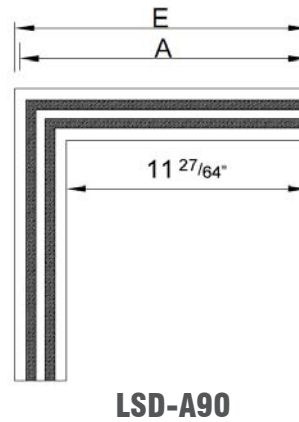
Continuous Linears

LSD can be ordered in sections with or without End Borders to form continuous linear slot diffusers of virtually any length.

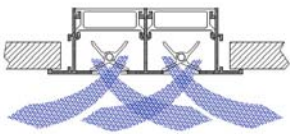
The maximum length for one section is 6' 6" (2m).



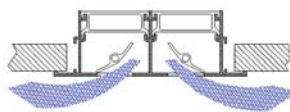
Inactive 90° angles for LSD also available



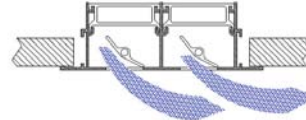
Airflow Balancing



2 Way Alternate (Default)



2 Way



1 Way

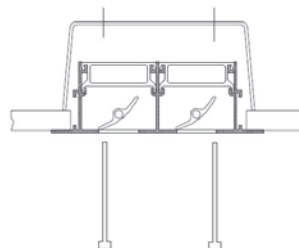


Vertical

Independently adjustable sectored vanes allow for multiple air diffusion patterns. The standard (factory) configuration is 2 Way Alternate and provides optimal performance and comfort in most applications.

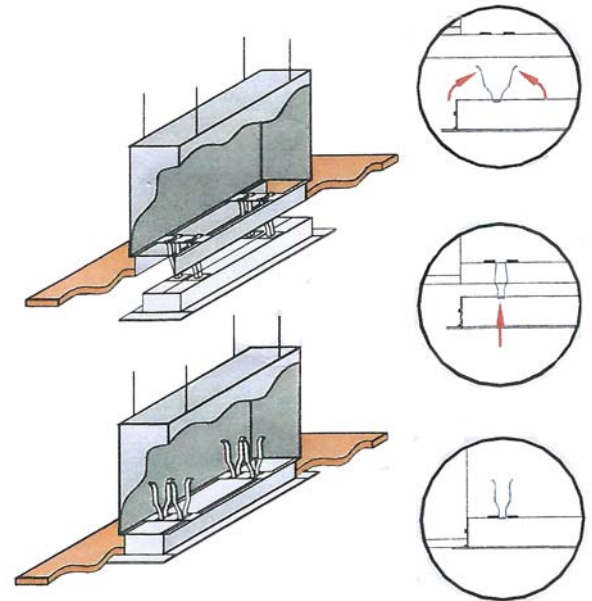
PM Mounting Kit

C-clip with long screws for installation without plenum directly into drywall.

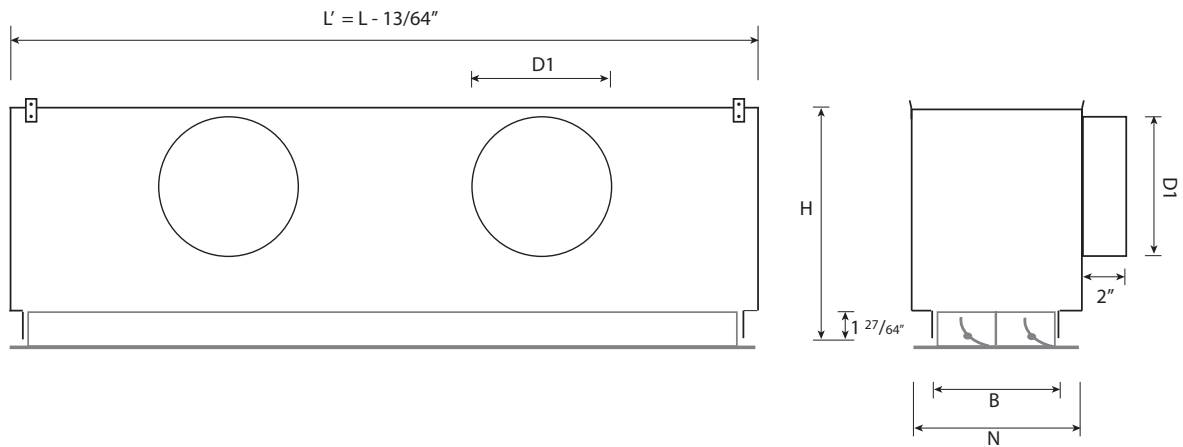
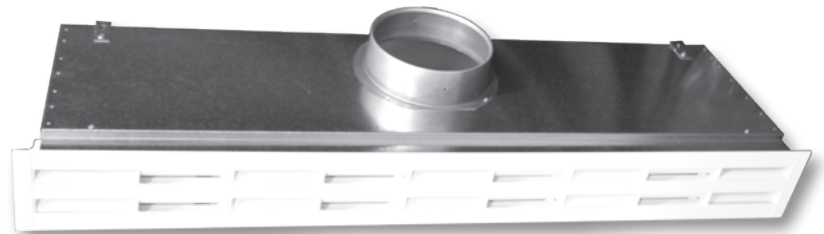


PL Hidden Mounting System

PLSD Plenum with PL mounting kit for LSD diffuser allow for quick and secure installation in drywall or open ceilings. LSD diffuser is attached to the plenum by means of spring clips and hooks. The diffuser can be removed and re-installed in just a few seconds for cleaning or balancing purposes.

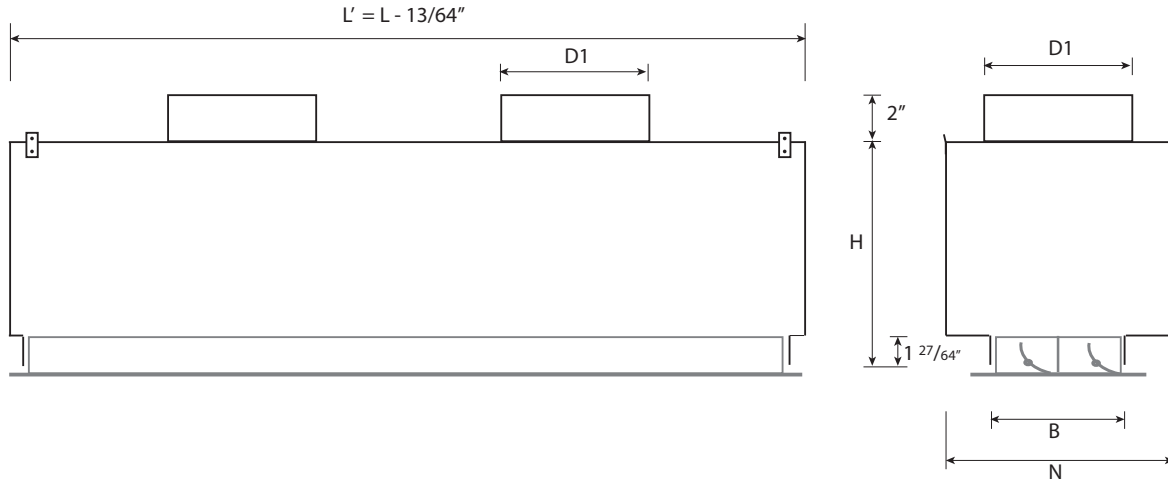


PLSD Plenum With Side Connection



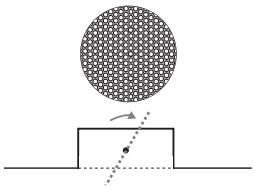
Slots	H	B	N	D1 (L ≤ 20")	D1 (L ≤ 40")	D1 (L ≤ 48")	D1 (L ≤ 60")	D1 (L ≤ 78")
1	10 5/64"	1 27/32"	2 23/32"	1x 6"D	1x 6"D	1x 6"D	1x 6"D	2x 6"D
2	10 5/64"	3 25/64"	4 1/4"	1x 6"D	1x 6"D	1x 6"D	2x 6"D	2x 6"D
3	11 21/32"	4 15/16"	5 25/32"	1x 8"D	1x 8"D	2x 8"D	2x 8"D	2x 8"D
4	11 21/32"	6 31/64"	7 21/64"	1x 8"D	1x 8"D	2x 8"D	2x 8"D	2x 8"D

PLSD-T Plenum With Top Connection



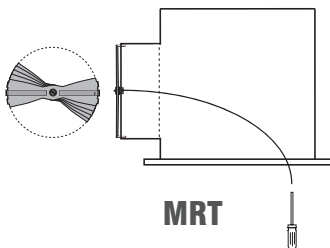
Slots	H	B	N	D1 (L ≤ 20")	D1 (L ≤ 40")	D1 (L ≤ 48")	D1 (L ≤ 60")	D1 (L ≤ 78")
1	8"	1 27/32"	6 7/8"	1x 6"D	1x 6"D	1x 6"D	1x 6"D	2x 6"D
2	8"	3 25/64"	6 7/8"	1x 6"D	1x 6"D	1x 6"D	2x 6"D	2x 6"D
3	10"	4 15/16"	8 7/8"	1x 8"D	1x 8"D	2x 8"D	2x 8"D	2x 8"D
4	10"	6 31/64"	8 7/8"	1x 8"D	1x 8"D	2x 8"D	2x 8"D	2x 8"D

Integrated Air Volume Dampers



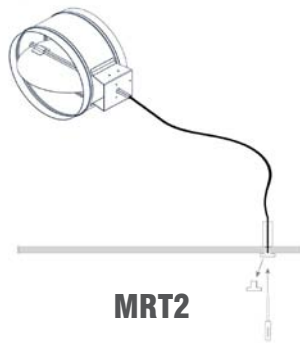
R

Perforated damper + air equalizer



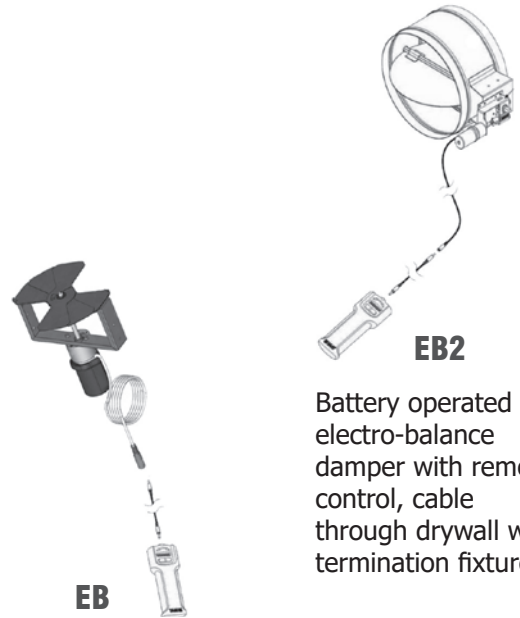
MRT

Manually operated damper, cable inside the plenum, adjustment through face



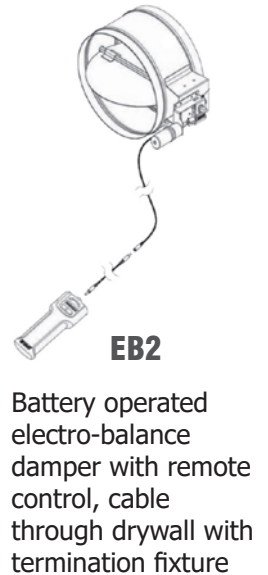
MRT2

Manually operated damper, cable through drywall with termination fixture



EB

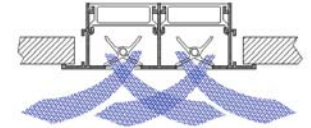
Battery operated electro-balance damper with remote control, cable through face



EB2

Battery operated electro-balance damper with remote control, cable through drywall with termination fixture

LSD Performance Data - 2 Way Alternate



1 Slot	CFM / Linear Foot	5	10	15	20	25	30	35	40
	Pressure Loss (in.w.g.)	0.004	0.016	0.036	0.064	0.098	0.141	0.192	0.25
	NC	-	-	17	26	34	40	45	49
	Throw (ft) - Coanda Effect	1-1-2	2-3-4	2-4-6	3-5-8	4-7-10	5-8-12	6-10-14	7-11-16
	Throw (ft) - No Ceiling Effect	1-1-2	1-2-3	2-3-5	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12
2 Slots	CFM / Linear Foot	10	20	30	40	50	60	70	80
	Pressure Loss (in.w.g.)	0.005	0.02	0.045	0.08	0.124	0.179	0.241	0.315
	NC	-	-	15	24	30	36	41	45
	Throw (ft) - Coanda Effect	1-1-2	2-3-4	3-4-7	4-6-9	4-7-11	5-9-13	6-10-16	7-12-18
	Throw (ft) - No Ceiling Effect	1-1-2	1-2-3	2-3-5	3-4-7	3-6-8	4-7-10	5-8-12	5-9-13
3 Slots	CFM / Linear Foot	15	30	45	60	75	90	105	120
	Pressure Loss (in.w.g.)	0.006	0.024	0.054	0.095	0.148	0.212	0.288	0.375
	NC	-	-	17	27	35	41	47	52
	Throw (ft) - Coanda Effect	1-2-2	2-3-5	3-5-7	4-7-10	5-8-12	6-10-15	7-12-17	8-13-20
	Throw (ft) - No Ceiling Effect	1-1-2	1-2-4	2-4-6	3-5-7	4-6-9	4-7-11	5-9-13	6-10-15
4 Slots	CFM / Linear Foot	20	40	60	80	100	120	140	160
	Pressure Loss (in.w.g.)	0.008	0.031	0.068	0.12	0.188	0.269	0.365	0.476
	NC	-	-	16	25	33	38	43	48
	Throw (ft) - Coanda Effect	1-2-3	2-4-6	3-6-9	5-8-12	6-10-14	7-12-17	8-14-20	9-16-23
	Throw (ft) - No Ceiling Effect	1-1-2	2-3-4	3-4-6	3-6-9	4-7-11	5-9-13	6-10-15	7-12-17

- NC value based on 10 db room attenuation

- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

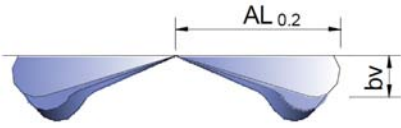
Noise and Pressure Loss Correction Factors Based on Length and Damper Opening													
		L = 20"			L = 40"			L = 48"			L > 60"		
Damper Opening %		100%	50%	0%	100%	50%	0%	100%	50%	0%	100%	50%	0%
1 Slot	Pressure Loss	0.95	2.35	3.15	1	1.4	2.2	1	1.4	2.2	1.1	2.5	3.3
	NC	-6	-3	-3.7	0	+0.8	+0.4	+1	+1.7	+1.2	-2.1	-0.4	-1.9
2 Slots	Pressure Loss	0.98	2.48	3.25	1	1.5	2.3	1	1.5	2.3	1.2	2.7	3.5
	NC	-3.7	-3.4	-2.9	0	+0.6	+0.6	+2.4	+3.3	+3.2	-0.5	+0.8	+0.9
3 Slots	Pressure Loss	0.96	2.26	3.36	1	1.3	2.4	1	1.3	2.4	1.3	2.4	3.5
	NC	-6.9	-6.3	-5.9	0	+0.9	+0.5	-3	-2.9	-3	-1.8	-1.5	-1.6
4 Slots	Pressure Loss	0.95	2.35	3.05	1	1.4	2.1	1	1.4	2.1	1.1	2.5	3.2
	NC	-3.4	-1.6	-2.4	0	+1.6	+1.2	-2	-1.4	-1.5	-2	-1.3	-1.5

Multiply Pressure Loss values, add or subtract NC values

Throw Correction Factors Based on Length				
	L = 20"	L = 40"	L = 48"	L > 60"
1 Slot	0.71	1	1.2	1.43
2 Slots	0.73	1	1.27	1.34
3 Slots	0.74	1	1.17	1.22
4 Slots	0.75	1	1.14	1.19

Multiply throw values with correction factor

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	0.05	1
-2	0.056	0.965
-4	0.063	0.925
-6	0.071	0.89
-8	0.079	0.865
-10	0.09	0.835
-12	0.1	0.82
-15	0.12	0.78
-18	0.14	0.75



bv= kh x Throw

Throw'(Δ T)= KI x Throw

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Induction Ratio				
Throw (ft)	1 Slot	2 Slots	3 Slots	4 Slots
4	8	7	6	5
6	14	12	9	8
8	18	14	12	10
10	22	18	15	13
15	33	27	24	18
20	44	36	31	26
25	55	46	38	33
30	66	55	46	39

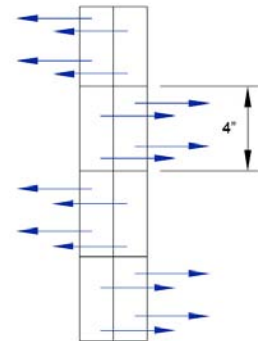
induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

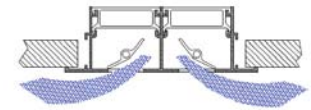
Temperature Difference Ratio				
Throw (ft)	1 Slot	2 Slots	3 Slots	4 Slots
4	0.082	0.115	0.14	0.18
6	0.065	0.088	0.12	0.135
8	0.057	0.079	0.097	0.12
10	0.051	0.07	0.09	1.05
15	0.043	0.058	0.75	0.09
20	0.038	0.05	0.065	0.078
25	0.034	0.046	0.057	0.07
30	0.031	0.043	0.054	0.065

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)



LSD Performance Data - 2 Way



2 Slots	CFM / Linear Foot	10	20	30	40	50	60	70	80
	Pressure Loss (in.w.g.)	0.005	0.02	0.045	0.08	0.124	0.179	0.241	0.315
	NC	-	-	15	24	30	36	41	45
	Throw (ft) - Coanda Effect	1-2-3	3-4-6	4-6-9	5-8-13	6-11-16	8-13-19	9-15-22	10-17-26
	Throw (ft) - No Ceiling Effect	1-2-2	2-3-5	3-5-7	4-6-10	5-8-12	6-10-14	7-11-17	8-13-19
4 Slots	CFM / Linear Foot	20	40	60	80	100	120	140	160
	Pressure Loss (in.w.g.)	0.008	0.031	0.068	0.12	0.188	0.269	0.365	0.476
	NC	-	-	16	25	33	38	43	48
	Throw (ft) - Coanda Effect	2-3-4	3-6-8	5-8-13	7-11-17	8-14-21	10-17-25	12-20-30	14-23-34
	Throw (ft) - No Ceiling Effect	1-2-3	3-4-6	4-6-9	5-8-13	6-11-16	8-13-19	9-15-22	10-17-26

- NC value based on 10 db room attenuation

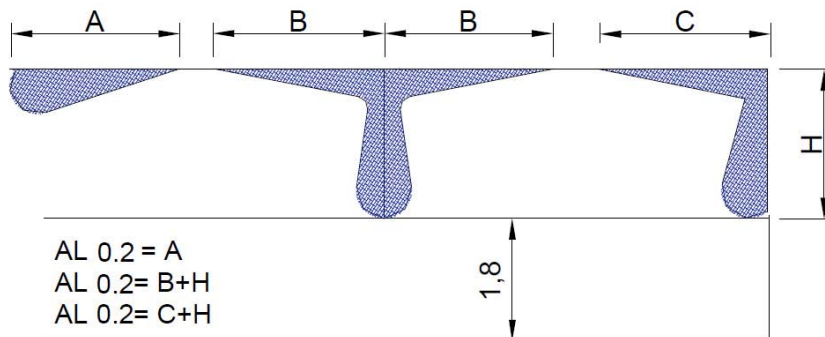
- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

Noise and Pressure Loss Correction Factors Based on Length and Damper Opening													
		L = 20"			L = 40"			L = 48"			L > 60"		
Damper Opening %		100%	50%	0%	100%	50%	0%	100%	50%	0%	100%	50%	0%
2 Slots	Pressure Loss	0.98	2.48	3.25	1	1.5	2.3	1	1.5	2.3	1.2	2.7	3.5
	NC	-3.9	-3.5	-3	0	+0.6	+0.6	+2.3	+3.2	+3.1	-0.3	+0.9	+1.1
4 Slots	Pressure Loss	0.95	2.35	3.05	1	1.4	2.1	1	1.4	2.1	1.1	2.5	3.2
	NC	-3.6	-1.5	-2.5	0	+1.5	+1.1	-1.5	-1.3	-1.4	-1.8	-1.2	-1.3

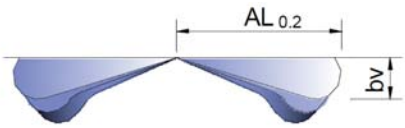
Multiply Pressure Loss values, add or subtract NC values

Throw Correction Factors Based on Length				
	L = 20"	L = 40"	L = 48"	L > 60"
2 Slots	0.6	1	1.17	1.3
4 Slots	0.767	1	1.2	1.17

Multiply throw values with correction factor



Delta T Correction Factors		
Δ T (F)	Kh	KI
0	0.05	1
-2	0.056	0.95
-4	0.062	0.92
-6	0.069	0.88
-8	0.077	0.85
-10	0.087	0.82
-12	0.096	0.8
-15	0.12	0.77
-18	0.135	0.73



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Induction Ratio		
Throw (ft)	2 Slots	4 Slots
4	3	4
6	7	6
8	9	7
10	11	9
15	16	13
20	21	17
25	27	21
30	31	26

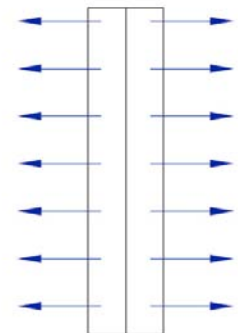
induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

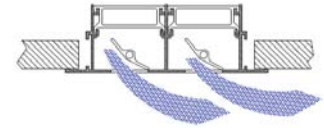
Temperature Difference Ratio		
Throw (ft)	2 Slots	4 Slots
4	0.26	0.35
6	0.19	0.28
8	0.17	0.24
10	0.15	0.22
15	0.125	0.175
20	0.105	0.145
25	0.093	0.135
30	0.085	0.125

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)



LSD Performance Data - 1 Way



1 Slot	CFM / Linear Foot	5	10	15	20	25	30	35	40
	Pressure Loss (in.w.g.)	0.004	0.016	0.036	0.064	0.098	0.141	0.192	0.25
	NC	-	-	17	26	34	40	45	49
	Throw (ft) - Coanda Effect	2-3-4	3-5-8	5-8-12	7-11-17	8-14-21	10-17-25	12-19-29	13-22-33
	Throw (ft) - No Ceiling Effect	1-2-3	2-4-6	4-6-9	5-8-12	6-10-15	7-12-19	9-15-22	10-17-25
2 Slots	CFM / Linear Foot	10	20	30	40	50	60	70	80
	Pressure Loss (in.w.g.)	0.005	0.02	0.045	0.08	0.124	0.179	0.241	0.315
	NC	-	-	15	24	31	37	41	45
	Throw (ft) - Coanda Effect	2-3-4	4-6-9	5-9-14	7-12-18	9-15-23	11-18-28	13-22-32	15-25-37
	Throw (ft) - No Ceiling Effect	1-2-3	3-5-7	4-7-10	5-9-14	7-11-17	8-14-21	10-16-24	11-19-28
3 Slots	CFM / Linear Foot	15	30	45	60	75	90	105	120
	Pressure Loss (in.w.g.)	0.006	0.024	0.054	0.095	0.148	0.212	0.288	0.375
	NC	-	-	17	27	35	41	47	52
	Throw (ft) - Coanda Effect	2-3-5	4-7-10	6-10-16	8-14-21	10-18-26	13-21-32	15-25-37	17-28-42
	Throw (ft) - No Ceiling Effect	2-3-4	3-5-8	5-8-12	6-10-16	8-13-20	10-16-24	11-19-28	13-21-32
4 Slots	CFM / Linear Foot	20	40	60	80	100	120	140	160
	Pressure Loss (in.w.g.)	0.008	0.031	0.068	0.12	0.188	0.269	0.365	0.476
	NC	-	-	17	26	33	39	44	48
	Throw (ft) - Coanda Effect	2-4-6	5-8-11	7-12-17	9-16-23	12-19-29	14-23-35	16-27-41	19-31-47
	Throw (ft) - No Ceiling Effect	2-3-4	3-6-9	5-9-13	7-12-17	9-15-22	11-18-26	12-21-31	14-24-35

- NC value based on 10 db room attenuation

- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

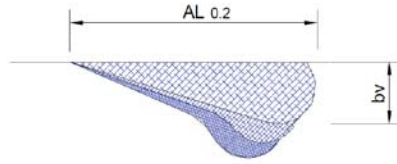
Noise and Pressure Loss Correction Factors Based on Length and Damper Opening													
		L = 20"			L = 40"			L = 48"			L > 60"		
Damper Opening %		100%	50%	0%	100%	50%	0%	100%	50%	0%	100%	50%	0%
1 Slot	Pressure Loss	0.95	2.35	3.15	1	1.4	2.2	1	1.4	2.2	1.1	2.5	3.3
	NC	-6	-3	-3.6	0	+0.8	+0.4	+1.2	+1.9	+1.4	-2	0	-1.6
2 Slots	Pressure Loss	0.98	2.48	3.25	1	1.5	2.3	1	1.5	2.3	1.2	2.7	3.5
	NC	-4	-3.6	-3.1	0	+0.6	+0.6	+2.3	+3.2	+3.1	0	+1	+1.2
3 Slots	Pressure Loss	0.96	2.26	3.36	1	1.3	2.4	1	1.3	2.4	1.3	2.4	3.5
	NC	-7	-6	-6	0	+0.9	+0.5	-2.7	-2.6	-2.7	-1.4	-1.1	-1.1
4 Slots	Pressure Loss	0.95	2.35	3.05	1	1.4	2.1	1	1.4	2.1	1.1	2.5	3.2
	NC	-3.4	-1.4	-2.5	0	+1.5	+1.2	-1.8	-1.1	-1.2	-1.7	-1	-1.1

Multiply Pressure Loss values, add or subtract NC values

Throw Correction Factors Based on Length				
	L = 20"	L = 40"	L = 48"	L > 60"
1 Slot	0.71	1	1.07	1.14
2 Slots	0.73	1	1.09	1.15
3 Slots	0.74	1	1.11	1.2
4 Slots	0.75	1	1.25	1.25

Multiply throw values with correction factor

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	0.05	1
-2	0.056	0.96
-4	0.063	0.925
-6	0.071	0.89
-8	0.079	0.865
-10	0.09	0.83
-12	0.1	0.82
-15	0.12	0.78
-18	0.14	0.75



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Induction Ratio				
Throw (ft)	1 Slot	2 Slots	3 Slots	4 Slots
4	5	3	5	2
6	8	7	6	3
8	10	8	7	6
10	12	10	9	7
15	17	14	12	10
20	21	18	15	13
25	25	22	19	15
30	30	27	23	18

induced room air = supplied cfm * i

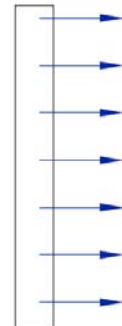
induced room air = cfm mixed for given throw

Temperature Difference Ratio				
Throw (ft)	1 Slot	2 Slots	3 Slots	4 Slots
4	0.18	0.26	0.32	0.37
6	0.145	0.19	0.25	0.28
8	0.125	0.17	0.22	0.24
10	0.115	0.15	0.19	0.22
15	0.09	0.125	0.155	0.175
20	0.078	0.105	0.14	0.145
25	0.069	0.094	0.125	0.135
30	0.062	0.085	0.11	0.125

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)

Delta T (Throw) = T (Room) - T (Throw)



LSD Performance Data - Vertical



1 Slot	CFM / Linear Foot	5	10	15	20	25	30	35	40
	Pressure Loss (in.w.g.)	0.004	0.016	0.036	0.064	0.098	0.141	0.192	0.25
	NC	-	-	17	26	34	40	45	49
	Throw (ft) - Coanda Effect	1-2-2	2-3-5	3-5-7	4-6-10	5-8-12	6-10-14	7-11-17	8-13-19
	Throw (ft) - No Ceiling Effect	1-1-2	1-2-4	2-4-5	3-5-7	4-6-9	4-7-11	5-8-13	6-10-15
2 Slots	CFM / Linear Foot	10	20	30	40	50	60	70	80
	Pressure Loss (in.w.g.)	0.005	0.02	0.045	0.08	0.124	0.179	0.241	0.315
	NC	-	-	15	24	31	37	41	45
	Throw (ft) - Coanda Effect	1-2-3	2-4-5	3-5-8	4-7-11	5-9-13	6-11-16	8-13-19	9-14-22
	Throw (ft) - No Ceiling Effect	1-1-2	2-3-4	2-4-6	3-5-8	4-7-10	5-8-12	6-9-14	6-11-16
3 Slots	CFM / Linear Foot	15	30	45	60	75	90	105	120
	Pressure Loss (in.w.g.)	0.006	0.024	0.054	0.095	0.148	0.212	0.288	0.375
	NC	-	-	17	27	35	41	47	52
	Throw (ft) - Coanda Effect	1-2-3	2-4-6	4-6-9	5-8-12	6-10-15	7-12-18	8-14-21	10-16-24
	Throw (ft) - No Ceiling Effect	1-1-2	2-3-4	3-4-7	4-6-9	4-7-11	5-9-13	6-10-16	7-12-18
4 Slots	CFM / Linear Foot	20	40	60	80	100	120	140	160
	Pressure Loss (in.w.g.)	0.008	0.031	0.068	0.12	0.188	0.269	0.365	0.476
	NC	-	-	17	26	33	39	44	48
	Throw (ft) - Coanda Effect	1-2-3	3-5-7	4-7-11	6-9-14	7-12-18	9-14-21	10-17-25	11-19-29
	Throw (ft) - No Ceiling Effect	1-2-3	2-4-5	3-5-8	4-7-11	5-9-13	6-11-16	8-13-19	9-14-22

- NC value based on 10 db room attenuation

- Horizontal Throw values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

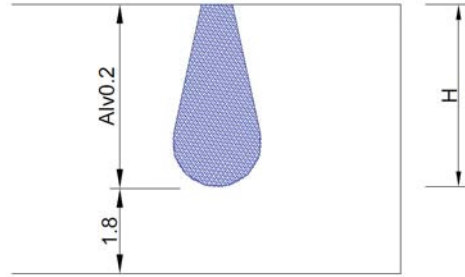
Noise and Pressure Loss Correction Factors Based on Length and Damper Opening													
		L = 20"			L = 40"			L = 48"			L > 60"		
Damper Opening %		100%	50%	0%	100%	50%	0%	100%	50%	0%	100%	50%	0%
1 Slot	Pressure Loss	0.95	2.35	3.15	1	1.4	2.2	1	1.4	2.2	1.1	2.5	3.3
	NC	-6.1	-3.1	-3.6	0	+0.8	+0.4	+0.9	+1.6	+1.1	-2.1	-0.5	-1.9
2 Slots	Pressure Loss	0.98	2.48	3.25	1	1.5	2.3	1	1.5	2.3	1.2	2.7	3.5
	NC	-3.8	-3.4	-2.9	0	+0.6	+0.6	+2.4	+3.3	+3.2	-0.3	+0.9	+1.1
3 Slots	Pressure Loss	0.96	2.26	3.36	1	1.3	2.4	1	1.3	2.4	1.3	2.4	3.5
	NC	-7	-6.3	-6	0	+0.9	+0.5	-2.8	-2.8	-2.9	-1.5	-1.2	-1.3
4 Slots	Pressure Loss	0.95	2.35	3.05	1	1.4	2.1	1	1.4	2.1	1.1	2.5	3.2
	NC	-3.4	-1.5	-2.5	0	+1.6	+1.2	-1.9	-1.3	-1.4	-1.9	-1.2	-1.3

Multiply Pressure Loss values, add or subtract NC values

Throw Correction Factors Based on Length				
	L = 20"	L = 40"	L = 48"	L > 60"
1 Slot	0.7	1	1.1	1.2
2 Slots	0.72	1	1.15	1.25
3 Slots	0.72	1	1.12	1.2
4 Slots	0.74	1	1.25	1.25

Multiply throw values with correction factor

Delta T Correction Factor				
ΔT (F)	KI 1 Slot	KI 2 Slots	KI 3 Slots	KI 4 Slots
0	1	1	1	1
+9	0.75	0.76	0.77	0.8
+18	0.64	0.65	0.66	0.64

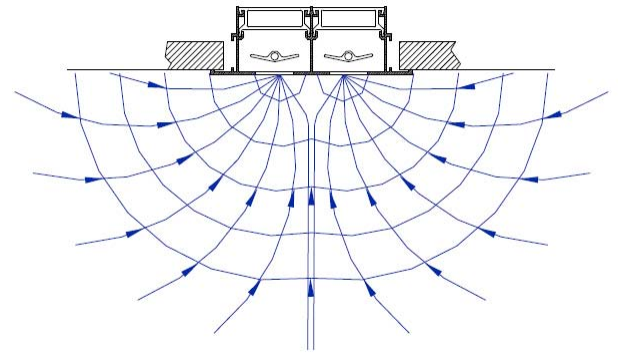


$Throw'(\Delta T) = KI \times Throw$

KI = Correction Factor for Vertical Diffusion
 AL_{0.2} = Distance at which velocity reaches 40 fpm



LSD Performance Data - Return Air



1 Slot	CFM / Linear Foot	10	15	20	25	30	35	40
	Pressure Loss (in.w.g.)	0.02	0.048	0.072	0.12	0.177	0.221	0.301
	NC	-	22	28	38	> 40	> 40	> 40
2 Slots	CFM / Linear Foot	20	30	40	50	60	70	80
	Pressure Loss (in.w.g.)	0.028	0.052	0.1	0.157	0.229	0.301	0.402
	NC	-	20	32	39	> 40	> 40	> 40
3 Slots	CFM / Linear Foot	20	30	40	50	60	70	80
	Pressure Loss (in.w.g.)	0.012	0.032	0.06	0.088	0.129	0.185	0.241
	NC	-	-	19	26	33	39	> 40
4 Slots	CFM / Linear Foot	30	45	60	75	90	105	120
	Pressure Loss (in.w.g.)	0.028	0.056	0.096	0.137	0.209	0.281	0.402
	NC	-	16	24	32	38	> 40	> 40

NC value based on 10 db room attenuation

Noise and Pressure Loss Correction Factors Based on Length and Damper Opening													
		L = 20"			L = 40"			L = 48"			L > 60"		
Damper Opening %		100%	50%	0%	100%	50%	0%	100%	50%	0%	100%	50%	0%
1 Slot	Pressure Loss	0.88	2.28	3	1	1.4	2.2	1.3	2.7	3.5	1.5	2.9	3.7
	NC	0	3	5	0	4	7	0	3	5	0	3	7
2 Slots	Pressure Loss	0.85	2.35	3.15	1	1.5	2.3	1.4	2.9	3.7	1.66	3.16	3.96
	NC	0	3	5	0	4	7	0	4	7	0	3	8
3 Slots	Pressure Loss	0.8	2.1	3.2	1	1.3	2.4	1.2	2.5	3.6	1.4	2.7	3.8
	NC	0	4	5	0	5	8	0	5	8	0	4	8
4 Slots	Pressure Loss	0.7	2.1	2.8	1	1.4	2.1	1.3	2.7	3.4	1.5	2.9	3.6
	NC	0	4	5	0	4	8	0	5	8	0	4	8

Multiply Pressure Loss values, add or subtract NC values

How to Specify LSD

Supply and mounting of High Induction Linear Slot Diffuser with 4" long adjustable curved blades model LSD. Constructed from extruded aluminum with PVC blades, powder coated in white M9016. Shall be supplied in 2 Way Alternate airflow pattern standard configuration for higher induction rate. Shall be supplied and installed with PLSD high performance plenum box featuring PL attachment system for easy and secure installation. By Effectiv HVAC / MADEL.

How to Order LSD Series

LSD	-AR	-PL	-AB	2	48	/M9016	+ PLSD	-AL	-R	-EQ	
	Mounting System		Sectored Vanes Color	Number of Slots	Length	Finish	Plenum	Insulation	Damper		
	End Borders										
											EQ
											Air Equalizing Grid
											R
											Perforated Damper + Air Equalizer
											MRT
											Manual Cable Thru Face
											MRT2
											Manual Cable Thru Drywall
											EB
											Remote Controlled, Thru Face
											EB2
											Remote Controlled, Thru Drywall
											AL
											1/2" Accoustical Liner
											R6
											2" R6 Thermal Insulation
											PLSD
											PLSD Plenum, Side Connection
											PLSD-T
											PLSD Plenum, Top Connection
											/M9016
											Powder Coated White RAL9016
											/AA
											Anodized in Matt Silver, Black Vanes
											/RAL
											Other RAL: please specify
											48
											Length in inches, Max 78"
											1
											1 Slot
											2
											2 Slots
											3
											3 Slots
											4
											4 Slots
											AB
											White Sectored Vanes
											AN
											Black Sectored Vanes
											PL
											Concealed Spring Clips (req. PLSD)
											PM
											Concealed U Clip and Long Screws
											T
											Visible Screws
											AR
											Two End Borders
											ARI
											Left End Border Only
											ARD
											Right End Border Only
											INT
											Interior (No End Borders)



NEX

Concave Elements Architectural Swirl Diffusers













COMFORT THROUGH RELIABILITY

EFFECTIVE  **TM**

Feb 6 2022

NEX SERIES

Architectural Swirl Diffusers

-  Fixed and reliable high induction swirl pattern
-  Architecturally appealing - choice of concave elements color
-  Multiple jets of various size to better handle velocity variations
-  High tolerance to air entering the diffuser at an angle
-  High air flow at relatively low sound power
-  High tolerance to temperature and humidity variations
-  High induction causes rapid reduction of air velocity and temperature difference
-  Square and round shapes available
-  Lay-in, duct mounted or drywall mounted, suitable for all ceilings
-  Heavy-gauge steel or aluminum face construction with ABS elements
-  Matching high-performance PERFAIR plenums, choice of top or side connection
-  PERFAIR have built-in anti-seismic attachment tabs and air equalizer/volume damper



NEX-S & NEX-C
by MADEL®

PATENTED



Some Applications



Ideal when combination of comfort, high cfm, low noise and appealing look is required



Ideal when reliable performance is required despite variable or uncertain conditions



Restaurants, bars, hotels, stores, lobbies



Offices, including ones with closed work spaces



Art galleries



Childcare



Schools and classrooms



Meeting rooms



Clean rooms



Multi-purpose rooms



NEX Architectural Swirl Diffusers by EffectiV HVAC™ and MADEL® are designed to be applied in air conditioning, ventilation and heating systems. The design of unique concave elements of diffusion in radial arrangement supplies the air in a swirl pattern while leveraging the coanda effect. The resulting airflow is more evenly spread and its high induction ratio helps reduce stratification.

NEX Concave Elements, combined with a PERFAIR high-performance plenum mixing box, emit a uniform airflow throughout the passage section despite variations in supplied air temperature and velocity, as well as non-ideal duct installation.

The NEX series diffusers admit a flow variation of 60% while keeping the air stream stable. For optimal conditions, NEX diffusers may be used in ceilings 8.5 up to 13 feet (2.6 up to 4 meters) high, with a temperature differential up to 22°F (12°C).

The air pattern reliability, high level of induction rate and reduced air stratification allow for designs with a much higher level of comfort and provide opportunities for significant energy savings.

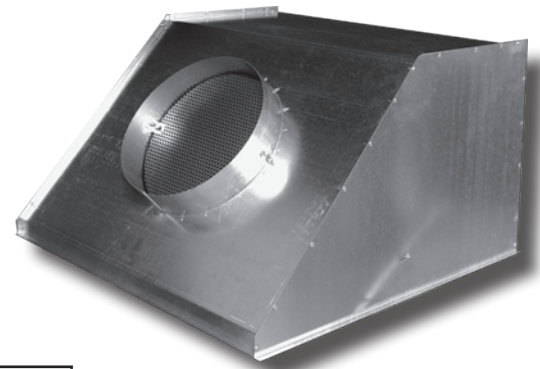
The face and plenum box are ordered separately and attached together with a screw through the face which is fixed in the plenum crossbar.

NEX Concave Elements are made of ABS tested in accordance to UL 94 HB *Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances - Horizontal Burning Test*

Plenum Selection

NEX swirl diffusers are available with a wide selection of PERFAIR plenums to suit any type of application. PERFAIR-SS with side connection is the most popular plenum for Square Diffusers and only requires 14" of ceiling space.

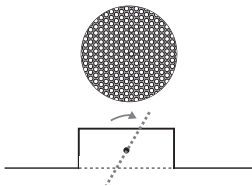
All PERFAIR plenums come with antiseismic tabs and perforated air volume damper / air equalizer.



PERFAIR-SS

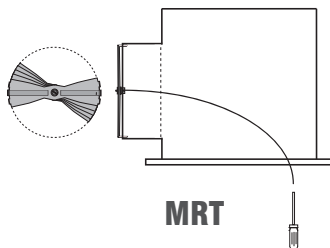
Plenum Model	Face Type	Connection	Recommended For
PERFAIR-CS	Round	Side	False or closed ceiling
PERFAIR-CT	Round	Top	Open ceiling with visible duct coming from top
PERFAIR-SS	Square	Side, Angle	False or closed ceiling
PERFAIR-SSS	Square	Side	Open ceiling with visible duct coming from side
PERFAIR-ST	Square	Top	Open ceiling with visible duct coming from top
PERFAIR-XS	Square	Side, Oval	Very limited ceiling space (6" min)
PERFAIR-XSS	Square	Side, Rect.	Very limited ceiling space (5" min)

Integrated Air Volume Dampers



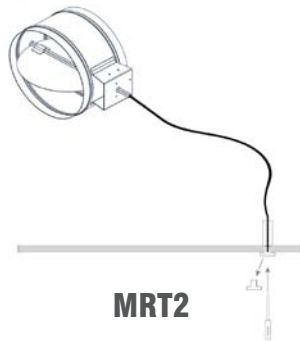
R

Perforated damper + air equalizer (Standard)



MRT

Manually operated damper, cable inside the plenum, adjustment through face



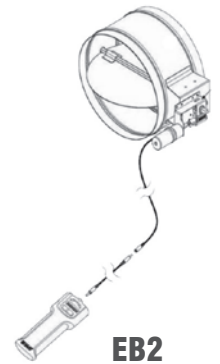
MRT2

Manually operated damper, cable through wall with termination fixture



EB

Battery operated electro-balance damper with remote control, cable through face



EB2

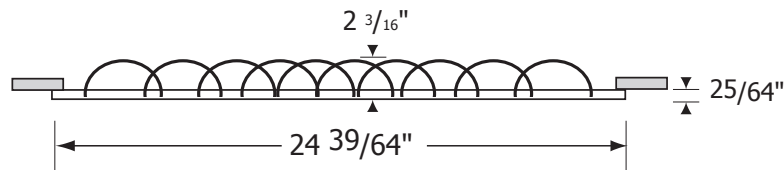
Battery operated electro-balance damper with remote control, cable through wall with termination fixture

NEX-C Round Architectural Swirl Diffuser



NEX-C

Dim	Free Area (sqf)	Min cfm	Max cfm
16" (400mm)	0.22	45	285
25" (625mm)	0.47	200	500



NEX-C 16 + PERFAIR-CS or PERFAIR-CT Performance Data

16" Diameter Face (Imperial)

400 mm Diameter Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041	0.062
6	CFM		59	79	98	118	137	157	196
	Pressure Loss (in.w.g.)		0.01	0.02	0.02	0.03	0.05	0.1	0.1
	NC		<15	<15	17	22	26	29	35
	Throw (ft) - Coanda Effect		1-2-3	2-3-4	2-4-6	3-4-7	3-5-8	4-6-9	4-7-11
	Throw (ft) - No Ceiling Effect		1-2-3	1-2-3	2-3-4	2-3-5	2-4-6	2-4-6	3-6-8
8	CFM	70	105	140	175	209	244	279	
	Pressure Loss (in.w.g.)	0.01	0.03	0.05	0.1	0.1	0.1	0.2	
	NC	<15	19	26	32	37	41	44	
	Throw (ft) - Coanda Effect	2-3-4	2-4-6	3-5-8	4-7-10	5-8-12	6-9-14	6-10-16	
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-4-6	3-5-7	4-6-9	4-7-10	5-8-12	

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

NEX-C 25 + PERFAIR-CS or PERFAIR-CT Performance Data

24 5/8" Diameter Face (Imperial)

625mm Diameter Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400	1600
	Velocity Pressure (H2O)	0.01	0.016	0.022	0.031	0.041	.062	0.09	0.122	0.16
6	CFM	79	98	118	137	157	196	236	275	314
	Pressure Loss (in.w.g.)		-	-	-	-	0.01	0.01	0.01	0.01
	NC		< 15	< 15	< 15	< 15	< 15	17	20	22
	Throw (ft) - Coanda Effect		1-2-4	2-3-4	2-3-5	2-4-6	3-5-7	4-6-9	4-7-10	5-8-12
	Throw (ft) - No Ceiling Effect		1-2-3	1-2-3	2-3-4	2-3-4	2-4-6	3-4-7	3-5-8	4-6-9
8	CFM	140	175	209	244	279	349	419	489	559
	Pressure Loss (in.w.g.)	-	-	0.01	0.01	0.01	0.02	0.02	0.03	0.04
	NC	< 15	< 15	< 15	17	20	24	28	31	34
	Throw (ft) - Coanda Effect	2-3-5	3-4-7	3-5-8	4-6-9	4-7-11	5-9-13	6-10-16	7-12-18	8-14-21
	Throw (ft) - No Ceiling Effect	2-3-4	2-3-5	2-4-6	3-5-7	3-5-8	4-7-10	4-8-12	6-9-14	6-10-16
10	CFM	218	273	327	382	436	545	654		
	Pressure Loss (in.w.g.)	0.01	0.01	0.014	0.018	0.024	0.036	0.052		
	NC	15	20	23	26	29	33	37		
	Throw (ft) - Coanda Effect	3-5-8	4-7-10	5-8-12	6-10-14	7-11-16	8-14-21	10-16-25		
	Throw (ft) - No Ceiling Effect	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-10-15	7-12-19		
12	CFM	314	393	471	550	628				
	Pressure Loss (in.w.g.)	0.01	0.017	0.03	0.04	0.05				
	NC	22	27	30	33	36				
	Throw (ft) - Coanda Effect	5-8-12	6-10-15	7-12-18	8-14-21	9-15-23				
	Throw (ft) - No Ceiling Effect	4-6-9	4-7-11	5-9-13	6-10-16	7-11-17				

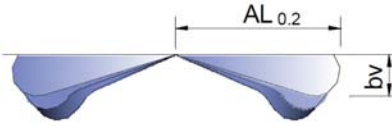
Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

Damper Correction Factor		100% Open	50% Open	10% Open
16"D (400mm)	Pressure Loss	x1	x1.2	x2.4
	NC	+1.6	+1.9	+1.1
25"D (625mm)	Pressure Loss	x1	x1.5	x4.8
	NC	+2	+2.75	+1.5

NEX-C + PERFAIR-CS or PERFAIR-CT Performance Data (continued)

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.037	1
-2	.041	.945
-4	.046	.905
-6	.052	.87
-8	.056	.835
-10	.065	.82
-12	.071	.79
-15	.084	.78



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios (16")			Ratios (25")	
Throw (ft)	i	Delta T Ratio	i	Delta T Ratio
4	8	0.052	5	0.12
6	14	0.032	9	0.068
8	18	0.026	13	0.051
10	24	0.02	16	0.04
15	38	0.01	26	0.027
20	38	-	38	0.02
25	71	-	47	0.016
30	-	-	60	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

How to Specify NEX-C

Supply and mounting of round high induction swirl diffuser with radial concave elements NEX-C, dimension 25 inches or 625 mm. Constructed from galvanized steel face panel powder coated in white M9016, with ABS elements. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

How to Specify NEX-ALU-C

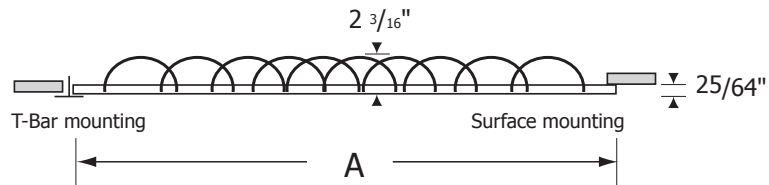
Supply and mounting of round high induction swirl diffuser with radial concave elements NEX-C, dimension 25 inches or 625 mm. Constructed from heavy gauge aluminum face panel powder coated in white M9016, with ABS elements. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

NEX-S Square Diffuser, Radial Vanes



NEX-S

Dim A	Free Area (sqf)	CFM Min	CFM Max
12"x12" (299mm)	0.22	100	250
24"x24" (605mm)	0.47	200	500



NEX-S + PERFAIR or BOXSTAR Performance Data

12" x 12" Face (Imperial)

299mm x 299mm Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400	1600
	Velocity Pressure (H2O)	0.01	0.016	0.022	0.031	0.041	.062	0.09	0.122	0.16
5	CFM	55	68	82	95	109	136	164	191	218
	Pressure Loss (in.w.g.)	0.008	0.012	0.017	0.023	0.03	0.046	0.065	0.087	0.113
	NC	< 15	< 15	< 15	< 15	< 15	15	20	23	26
	Throw (ft) - coanda	1-2-3	2-3-4	2-3-5	2-4-5	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12
6	CFM	79	98	118	137	157	196	236	275	314
	Pressure Loss (in.w.g.)	0.02	0.015	0.03	0.05	0.06	0.09	0.13	0.17	0.21
	NC	< 15	< 15	< 15	15	20	25	30	33	41
	Throw (ft) - coanda	2-3-4	2-4-5	3-4-7	3-5-8	4-6-9	4-7-11	5-9-13	6-10-15	7-11-17
8	CFM	140	175	209	244	279	349			
	Pressure Loss (in.w.g.)	0.05	0.07	0.1	0.14	0.18	0.24			
	NC	17	22	27	31	34	42			
	Throw (ft) - coanda	3-5-8	4-6-10	5-8-12	5-9-14	6-10-16	8-12-19			

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.
- No ceiling effect: multiply values by 0.7

NEX-S + PERFAIR or BOXSTAR Performance Data (continued)

24" x 24" Face (Imperial)

605mm x 605mm Face (Metric)

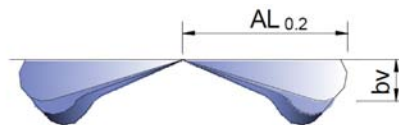
Neck Size (inches)	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400	1600
	Velocity Pressure (H2O)	0.01	0.016	0.022	0.031	0.041	.062	0.09	0.122	0.16
6	CFM		98	118	137	157	196	236	275	314
	Pressure Loss (in.w.g.)		0.01	0.01	0.01	0.02	0.03	0.04	0.06	0.07
	NC		< 15	< 15	< 15	< 15	15	19	22	25
	Throw (ft) - coanda		1-2-4	2-3-4	2-3-5	2-4-6	3-5-7	4-6-9	4-7-10	5-8-12
8	CFM	140	175	209	244	279	349	419	489	559
	Pressure Loss (in.w.g.)	0.02	0.02	0.03	0.04	0.06	0.09	0.12	0.17	0.21
	NC	< 15	< 15	16	19	22	27	31	35	38
	Throw (ft) - coanda	2-3-5	3-4-7	3-5-8	4-6-9	4-7-11	5-9-13	6-10-16	7-12-18	8-14-21
10	CFM	218	273	327	382	436	545	654	764	
	Pressure Loss (in.w.g.)	0.036	0.055	0.077	0.104	0.133	0.205	0.29	0.389	
	NC	17	22	26	29	32	37	40	44	
	Throw (ft) - coanda	3-5-8	4-7-10	5-8-12	6-10-14	7-11-16	8-14-21	10-16-25	12-19-29	
12	CFM	314	393	471	550	628				
	Pressure Loss (in.w.g.)	0.07	0.11	0.15	0.21	0.27				
	NC	25	30	34	37	40				
	Throw (ft) - coanda	5-8-12	6-10-15	7-12-18	8-14-21	9-15-23				

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.
- No ceiling effect: multiply values by 0.7

Damper Correction Factor		100% Open	50% Open	10% Open
12"x12" (299mm)	Pressure Loss	x1	x1.2	x2.4
	NC	+1.6	+1.9	+1.1
24"x24" (605mm)	Pressure Loss	x1	x1.4	x4
	NC	+2	+2.74	+1.5

Delta T Correction Factors				
Δ T (F)	12"x 12" (299mm)		24"x 24" (605mm)	
	Kh	KI	Kh	KI
0	.037	1	.037	1
-2	.041	.945	.041	.945
-4	.046	.905	.046	.905
-6	.052	.87	.052	.87
-8	.056	.835	.056	.82
-10	.065	.82	.065	.82
-12	.071	.79	.071	.79
-15	.084	.78	.084	.78



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion

KI = Throw Correction Factor

AL_{0.2} = Distance at which velocity reaches 40 fpm

NEX-S + PERFAIR or BOXSTAR Performance Data (continued)

Ratios				
Distance (ft)	i (12")	i (24")	Delta T Ratio (12")	Delta T Ratio (24")
4	7	5	0.053	0.12
6	14	9	0.033	0.068
8	18	13	0.025	0.051
10	22	16	0.019	0.04
15	39	26	-	0.027
20	55	38	-	0.02
25	72	47	-	0.016
30	90	60	-	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

How to Specify NEX-S

Supply and mounting of square high induction swirl diffuser with concave elements model NEX-S. Constructed from galvanized steel face panel powder coated in white M9016, with ABS concave elements. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

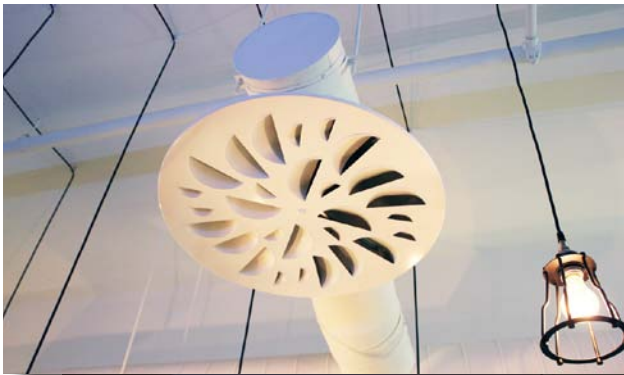
How to Specify NEX-ALU-S

Supply and mounting of square high induction swirl diffuser with concave elements model NEX-S. Constructed from heavy gauge aluminum face panel powder coated in white M9016, with ABS concave elements. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.



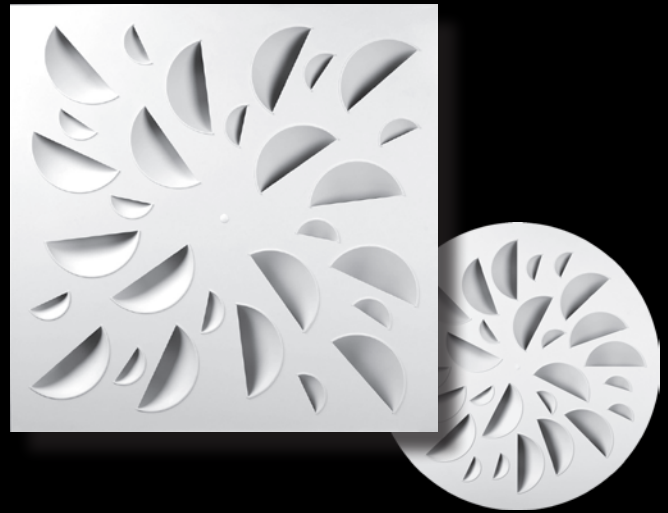
How to Order NEX Series

<p>NEX- S 24 + PERFAIR-ST 24 10</p>	<p>Plenum</p>	<p>Neck Diameter 6" 8", 10" or 12" D</p>
	<p>Concave Elements Color</p>	<p>Match Face Dim Match Product Face</p>
	<p>Face Dimension</p>	<p>PERFAIR-CS Round, Side Entry</p> <p>PERFAIR-CT Round, Top Entry</p> <p>PERFAIR-SS Square, Side Entry</p> <p>PERFAIR-ST Square, Top Entry</p>
<p>Model</p>	<p>Std White by default</p> <p>/EN Night</p> <p>/EV Pistachio Green</p> <p>/EL Lavender Blue</p> <p>/ER Red</p>	<p>12 12"x12" Square Face</p> <p>16 16" Diameter Face</p> <p>24 24"x24" Square Face</p> <p>25 25" Diameter Face</p>
		<p>C Steel, Round</p> <p>S Steel, Square</p> <p>ALU-C Aluminum, Round</p> <p>ALU-S Aluminum, Square</p>



NEX

Concave Elements Swirl Diffusers



A picture is worth a thousand words, yet this revolutionary diffuser is more than just about the look. Its high induction swirl pattern, created by multiple jets, mixes supply air with room air more efficiently, ultimately providing a higher level of comfort in the room. Another great step in the new era of air distribution.

NEX STEP... PICK YOUR CONCAVE ELEMENTS COLOR



Pistachio Green



Lavender Blue



Red



Night

Available in square and circular shapes, NEX diffusers are suitable for suspended ceilings, closed ceilings and open ceilings. NEX can easily replace standard diffusers in existing buildings for instant look and comfort improvement.



Innovative Solutions by

EFFECTIVE 



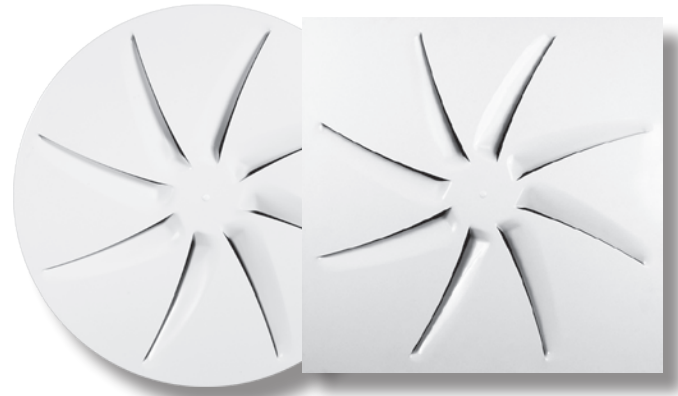
OTO

Curved Slot Architectural Swirl Diffusers

EFFECTIVE  **TM**











OTO SERIES

Curved Slot Swirl Diffusers



OTO-C & OTO-S
by MADEL®

PATENTED

-  Fixed and reliable high induction swirl pattern
-  High velocity swirl jets provide efficient mixing of supplied air with room air
-  High tolerance to air entering the diffuser at an angle
-  Architecturally appealing curves and design
-  Great for lower cfm or high comfort applications
-  Square and round shapes available
-  Lay-in, duct mounted or drywall mounted, suitable for all ceilings
-  Single piece, heavy-gauge stamped steel face construction
-  Matching high-performance PERFAIR plenums, choice of top or side connection
-  PERFAIR have built-in anti-seismic attachment tabs and air equalizer/volume damper

OTO Series curved slot swirl diffusers by EffectiV HVAC™ and MADEL® are designed to be used in air conditioning, ventilation and heating systems at a temperature differential up to 22°F (12°C). They can be mounted in false ceilings, on drywall, or suspended from the ceiling, from 8.5 feet to 13 feet (2.6 up to 4 meters) high. OTO diffusers allow a flow variation of 60% while keeping the air stream stable.

The particular design of OTO diffusers creates a uniform airflow along the length of each aperture. The radial configuration of the eight curved slots produces a rotational blade jet pattern. The resulting high velocity swirl diffusion combined with a Coanda effect results in efficient mixing of supplied air with room air, a high induction ratio and reduced air stratification.

As a result of the collaboration with Lievore, Altherr & Molina, OTO's original design allows for manufacturing from a single continuous sheet, without any edges highlighting an assembled construction. This results in very smooth airflow characteristics while creating new design possibilities and reducing the visual impact within the architectural surroundings.

Some Applications



Ideal for medium to low cfm applications where a high level of comfort is required



Ideal when reliable performance is required despite installation constraints



Closed office space, reception desk, waiting rooms, meeting rooms



High end residential applications



Restaurant dining rooms



Childcare



Schools and classrooms



Call centers



Dental and medical clinics



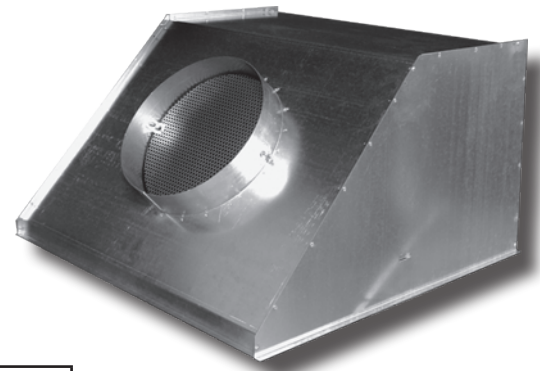
Multi-purpose rooms



Plenum Selection

OTO swirl diffusers are available with a wide selection of PERFAIR plenums to suit any type of application. PERFAIR-SS with side connection is the most popular plenum for Square Diffusers and only requires 14" of ceiling space.

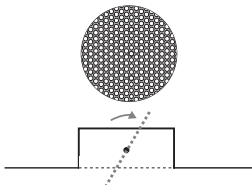
All PERFAIR plenums come with antiseismic tabs and perforated air volume damper / air equalizer.



PERFAIR-SS

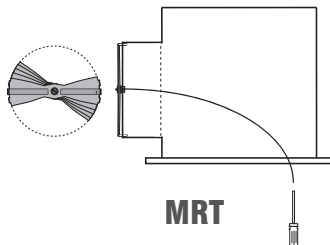
Plenum Model	Face Type	Connection	Recommended For
PERFAIR-CS	Round	Side	False or closed ceiling
PERFAIR-CT	Round	Top	Open ceiling with visible duct coming from top
PERFAIR-SS	Square	Side, Angle	False or closed ceiling
PERFAIR-SSS	Square	Side	Open ceiling with visible duct coming from side
PERFAIR-ST	Square	Top	Open ceiling with visible duct coming from top
PERFAIR-XS	Square	Side, Oval	Very limited ceiling space (6" min)
PERFAIR-XSS	Square	Side, Rect.	Very limited ceiling space (5" min)

Integrated Air Volume Dampers



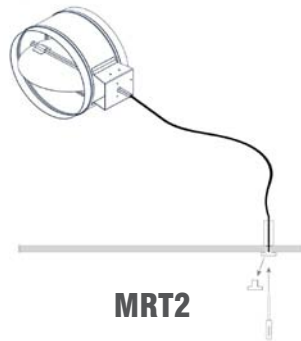
R

Perforated damper + air equalizer (Standard)



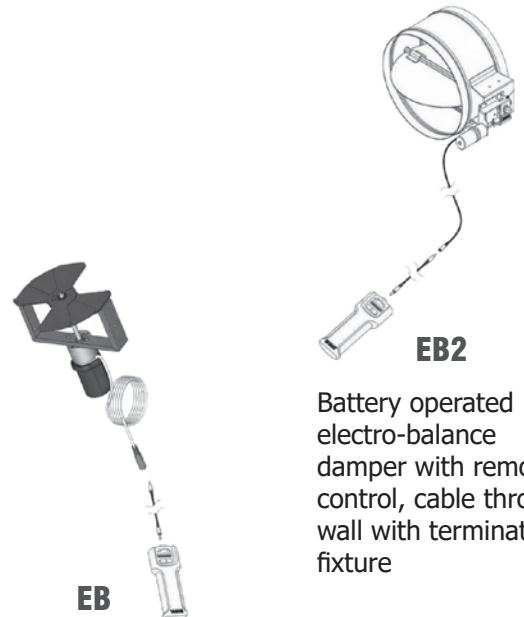
MRT

Manually operated damper, cable inside the plenum, adjustment through face



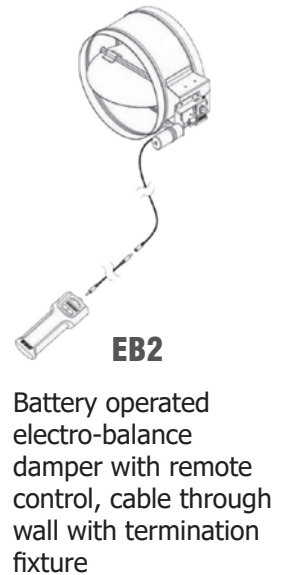
MRT2

Manually operated damper, cable through wall with termination fixture



EB

Battery operated electro-balance damper with remote control, cable through face

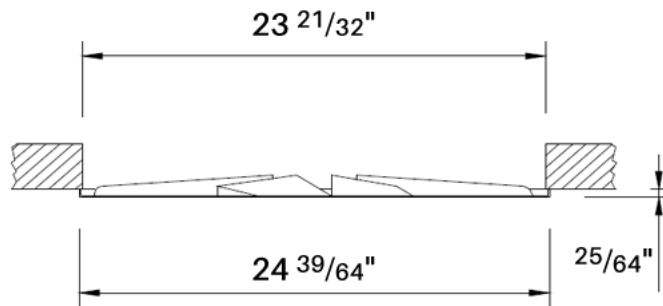


EB2

Battery operated electro-balance damper with remote control, cable through wall with termination fixture

OTO-C Curved Slot Round Swirl Diffuser

Dim	Free Area (sqf)	Min cfm	Max cfm
25" (625mm)	0.0427	210	341



OTO-C + PERFAIR Performance Data

24 5/8" Diameter Face (Imperial)

625mm Diameter Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041	.062
6	CFM			79	98	118	137	157	196
	Pressure Loss (in.w.g.)			-	0.01	0.02	0.03	0.03	0.05
	NC			< 15	< 15	< 15	< 15	< 15	18
	Throw (ft) - Coanda Effect			2-3-3	2-3-4	2-3-5	2-4-6	3-4-6	3-5-8
	Throw (ft) - No Ceiling Effect			1-2-3	1-2-3	1-2-7	2-3-4	2-3-5	2-4-6
8	CFM		105	140	175	209	244	279	349
	Pressure Loss (in.w.g.)		0.02	0.03	0.04	0.06	0.08	0.1	0.16
	NC		< 15	< 15	15	19	24	27	33
	Throw (ft) - Coanda Effect		2-3-4	2-4-6	3-5-7	3-6-8	4-6-10	4-7-11	6-9-14
	Throw (ft) - No Ceiling Effect		1-2-3	2-3-4	2-4-5	3-4-6	3-5-7	3-6-8	4-7-10
10	CFM	109	164	218	273	327	382	436	545
	Pressure Loss (in.w.g.)	0.017	0.038	0.065	0.099	0.139	0.186	0.239	0.364
	NC	< 15	< 15	21	27	31	36	39	45
	Throw (ft) - Coanda Effect	2-3-4	3-4-7	4-6-9	4-7-11	5-9-13	6-10-15	7-12-17	9-14-22
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-5	3-4-7	3-5-8	4-7-10	5-8-11	5-9-13	6-11-16

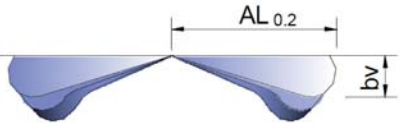
Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

OTO-C + PERFAIR Performance Data (continued)

Damper Correction Factor		100% Open	50% Open	10% Open
25" D (625mm)	Pressure Loss	x1	x1.2	x3.1
	NC	+0.8	+2.7	-0.6

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	0.04	1
-2	0.045	0.945
-4	0.05	0.91
-6	0.055	0.87
-8	0.06	0.84
-10	0.068	0.82
-12	0.076	0.805
-15	0.089	0.78



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios		
Throw (ft)	i	Delta T Ratio
4	7	0.12
6	12	0.057
8	14	0.04
10	18	0.029
15	28	0.017
20	38	-
25	47	-
30	58	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

How to Specify OTO-C

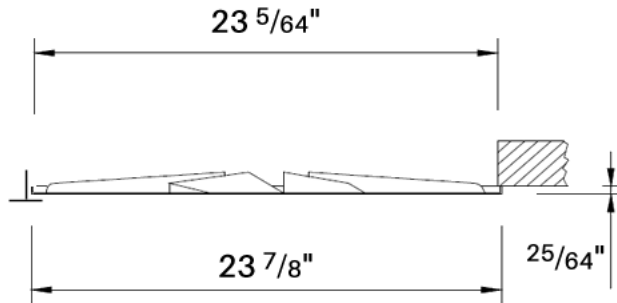
Supply and mounting of round high induction OTO-C swirl diffuser, with stamped curved slots in radial pattern, dimension 25 inches or 625 mm. Constructed from galvanized steel face panel powder coated in white M9016. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

OTO-S Curved Slot Square Swirl Diffuser

Dim	Free Area (sqf)	Min cfm	Max cfm
24" x 24" (605mm)	0.0427	210	341



OTO-S



OTO-S + PERFAIR Performance Data

24" x 24" Face (Imperial)

605mm x 605mm Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041	.062
6	CFM			79	98	118	137	157	196
	Pressure Loss (in.w.g.)			-	0.01	0.02	0.03	0.03	0.05
	NC			< 15	< 15	< 15	< 15	< 15	20
	Throw (ft) - Coanda Effect			2-3-3	2-3-4	2-3-5	2-4-6	3-4-6	3-5-8
	Throw (ft) - No Ceiling Effect			1-2-3	1-2-3	1-2-7	2-3-4	2-3-5	2-4-6
8	CFM		105	140	175	209	244	279	349
	Pressure Loss (in.w.g.)		0.02	0.03	0.04	0.06	0.08	0.1	0.16
	NC		< 15	< 15	17	22	26	30	36
	Throw (ft) - Coanda Effect		2-3-4	2-4-6	3-5-7	3-6-8	4-6-10	4-7-11	6-9-14
	Throw (ft) - No Ceiling Effect		1-2-3	2-3-4	2-4-5	3-4-6	3-5-7	3-6-8	4-7-10
10	CFM	109	164	218	273	327	382	436	545
	Pressure Loss (in.w.g.)	0.017	0.038	0.065	0.099	0.139	0.186	0.239	0.364
	NC	< 15	16	23	29	34	38	41	47
	Throw (ft) - Coanda Effect	2-3-4	3-4-7	4-6-9	4-7-11	5-9-13	6-10-15	7-12-17	9-14-22
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-5	3-4-7	3-5-8	4-7-10	5-8-11	5-9-13	6-11-16

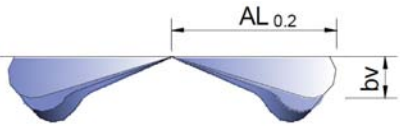
Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

OTO-S + PERFAIR Performance Data (continued)

Damper Correction Factor		100% Open	50% Open	10% Open
24"x 24" (605mm)	Pressure Loss	x1	x1.2	x3.1
	NC	+0.8	+2.7	-0.6

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	0.04	1
-2	0.045	0.945
-4	0.05	0.91
-6	0.055	0.87
-8	0.06	0.84
-10	0.068	0.82
-12	0.076	0.805
-15	0.089	0.78



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Ratios		
Throw (ft)	i	Delta T Ratio
4	7	0.12
6	12	0.057
8	14	0.04
10	18	0.029
15	28	0.017
20	38	-
25	47	-
30	58	-

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

How to Specify OTO-S

Supply and mounting of high induction square swirl diffuser OTO-S, with stamped curved slots in radial pattern, dimension 24x24 inches or 605x605 mm. Constructed from galvanized steel face panel powder coated in white M9016. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

How to Order OTO Series

OTO	-S	24	+ PERFAIR-ST	24	10
			Plenum	Neck Diameter 6" 8", 10" or 12" D	
				Match Face Dim Match Product Face	
			PERFAIR-CS	Round, Side Entry	
			PERFAIR-CT	Round, Top Entry	
			PERFAIR-SS	Square, Side Entry	
			PERFAIR-ST	Square, Top Entry	
Face Dimension			24	24"x24" Square Face	
			25	25" Diameter Face	
Model			C	Round	
			S	Square	







PLAY

360-Degree Adjustable Diffusers

COMFORT THROUGH FLEXIBILITY













EFFECTIVE 

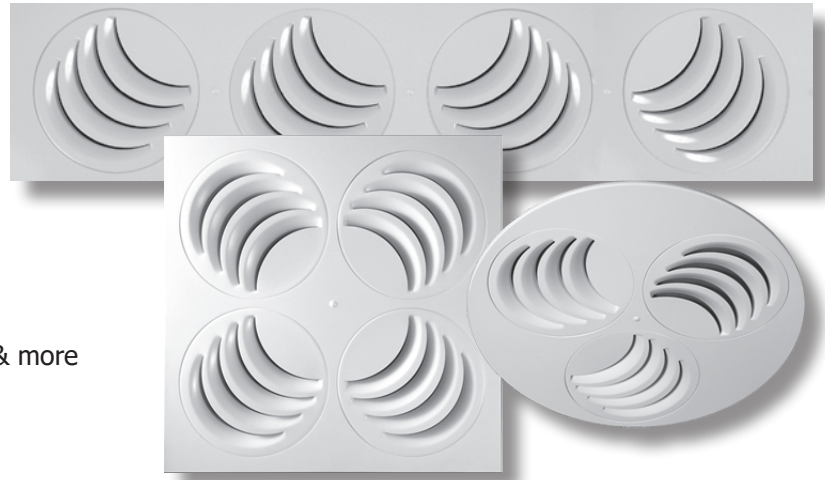
TM

Nov 15 2020

PLAY SERIES

Adjustable Sectors Diffusers

-  Full 360 degrees horizontal adjustment
-  Easy to adjust from the face, without tools
-  Can act as swirl, 1 Way, 2 Way, 3 Way, 4 Way & more
-  Architecturally appealing
-  Provides new solutions for revolutionary designs
-  Good tolerance to airflow entering the diffuser at an angle
-  High induction causes rapid reduction of speeds and temperature variations
-  Square, round and rectangular shapes available
-  Lay-in, duct mounted or drywall mounted, suitable for all ceilings
-  Heavy-gauge, powder coated steel face
-  Matching high-performance PERFAIR plenums, choice of top or side connection
-  PERFAIR have built-in anti-seismic attachment tabs and air equalizer/volume damper



PLAY-R, PLAY-S & PLAY-C
by MADEL®

PATENTED

Model	Recommended cfm	
	Min	Max
PLAY-C 25	160	315
PLAY-R 48 1 2	200	400
PLAY-S 24	200	400



PLAY Adjustable Sectors Diffusers by EffectiV HVAC™ and MADEL® are designed to be used in air conditioning, ventilation and heating systems at a temperature differential up to 22°F (12° C). They can be mounted in false ceilings, on drywall, or suspended from the ceiling, from 8.5 feet to 13 feet (2.6 up to 4 meters) high.

The PLAY diffusers respond to a large variety of functional and architectural requirements and provide new solutions not previously available, thanks to their manually-adjustable sectors of diffusion.

The adjustment of each sector is made easy by means of partial stoppers which indicate the different positions. According to the direction of the sectors, PLAY diffusers can act as a swirl or directional (1, 2, 3 or 4-way) diffuser.

PLAY diffusers, combined with PERFAIR high performance plenum mixing boxes, emit a uniform airflow throughout the passage section despite variations in supplied air temperature and velocity, as well as non-ideal duct installation.

In any one of their configurations, PLAY diffusers use the coanda effect which creates uniform airflow in all effective areas. The high induction ratio helps reduce stratification. PLAY diffusers allow a flow variation of 60%, keeping the air stream stable.

PLAY diffusers' unique 100% horizontal adjustability, high induction ratio and reduced air stratification allow for designs with a much higher level of comfort and provide opportunity for significant energy savings.

Face and plenum box are ordered separately and attached together with a screw through face which is fixed in plenum crossbar.



Some Applications



Ideal for applications where conditions and layout may change over time



Ideal when combination of comfort, high cfm, low noise and appealing look is required



PLAY-R is perfect for hallways and large rooms with perimeter supply



Best diffuser for large office spaces with multiple cubicles



Restaurants, bars, hotels, stores, lobbies



Art galleries



Childcare



Schools and classrooms



Meeting rooms



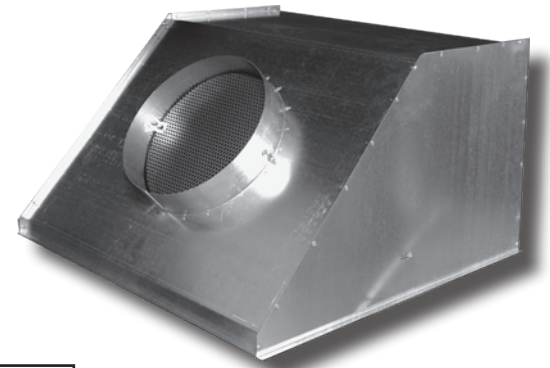
Multi-purpose rooms



Plenum Selection

PLAY adjustable diffusers are available with a wide selection of PERFAIR plenums to suit any type of application. PERFAIR-SS with side connection is the most popular plenum for Square Diffusers and only requires 14" of ceiling space.

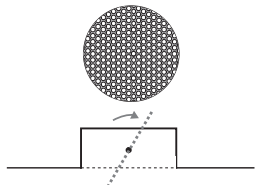
All PERFAIR plenums come with antiseismic tabs and perforated air volume damper / air equalizer.



PERFAIR-SS

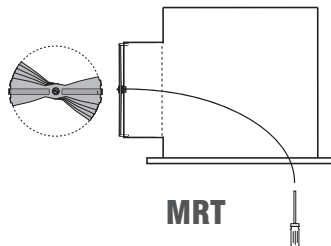
Plenum Model	Face Type	Connection	Recommended For
PERFAIR-CS	Round	Side	False or closed ceiling
PERFAIR-CT	Round	Top	Open ceiling with visible duct coming from top
PERFAIR-RS	Rectangular	Side	Connection coming from side
PERFAIR-RT	Rectangular	Top	Connection coming from top
PERFAIR-SS	Square	Side, Angle	False or closed ceiling
PERFAIR-SSS	Square	Side	Open ceiling with visible duct coming from side
PERFAIR-ST	Square	Top	Open ceiling with visible duct coming from top
PERFAIR-XS	Square	Side, Oval	Very limited ceiling space (6" min)
PERFAIR-XSS	Square	Side, Rect.	Very limited ceiling space (5" min)

Integrated Air Volume Dampers



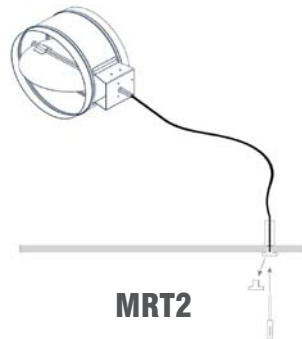
R

Perforated damper + air equalizer (Standard)



MRT

Manually operated damper, cable inside the plenum, adjustment through face



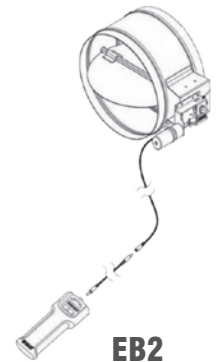
MRT2

Manually operated damper, cable through wall with termination fixture



EB

Battery operated electro-balance damper with remote control, cable through face



EB2

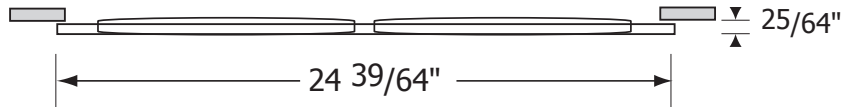
Battery operated electro-balance damper with remote control, cable through wall with termination fixture

PLAY-C Adjustable Sectors Round Diffuser



PLAY-C

Dim	Free Area (sqf)	Min cfm	Max cfm
25" (625mm)	0.323	160	315



PLAY-C + PERFAIR or PLXOC Performance Data

24 5/8" Diameter Face (Imperial)

625mm Diameter Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041	.062
6	CFM				98	118	137	157	196
	Pressure Loss (in.w.g.)				0.02	0.029	0.038	0.049	0.073
	NC				< 15	< 15	< 15	15	22
	Throw (ft) - Coanda Effect				2-3-4	2-3-5	2-4-6	3-4-7	3-5-8
	Throw (ft) - No Ceiling Effect				1-2-3	2-3-4	2-3-4	2-3-5	2-4-6
8	CFM	70	105	140	175	209	244	279	349
	Pressure Loss (in.w.g.)	0.011	0.023	0.039	0.06	0.083	0.11	0.141	0.215
	NC	< 15	< 15	< 15	19	24	28	32	38
	Throw (ft) - Coanda Effect	1-2-3	2-3-5	2-4-6	3-5-8	4-6-9	4-7-10	5-8-11	6-9-14
	Throw (ft) - No Ceiling Effect	1-2-2	1-2-4	2-3-5	2-4-6	3-4-7	3-5-8	3-6-9	4-7-11
10	CFM	109	164	218	273	327	382		
	Pressure Loss (in.w.g.)	0.024	0.053	0.09	0.136	0.19	0.255		
	NC	< 15	17	24	31	36	41		
	Throw (ft) - Coanda Effect	2-3-5	3-5-7	4-6-9	4-8-11	5-9-13	6-10-15		
	Throw (ft) - No Ceiling Effect	1-2-4	2-4-5	3-5-7	3-6-8	4-7-10	5-8-11		

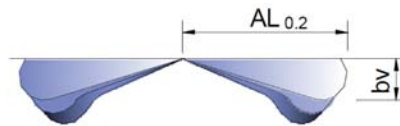
Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

PLAY-C + PERFAIR or PLXOC Performance Data (continued)

Damper Correction Factor		100% Open	50% Open	10% Open
25"D (625mm)	Pressure Loss	x 1	x 1	x 1.4
	NC	+0.8	+0.7	+1.2

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.039	1
-2	.042	.965
-4	.046	.93
-6	.05	.91
-8	.055	.86
-10	.065	.84
-12	.074	.82
-15	.099	.78



$$bv = kh \times \text{Throw}$$

$$\text{Throw}'(\Delta T) = KI \times \text{Throw}$$

Kh = Correction Factor for Vertical Diffusion

KI = Throw Correction Factor

$AL_{0.2}$ = Distance at which velocity reaches 40 fpm

Ratios		
Throw (ft)	i	Delta T Ratio
4	6	0.08
6	9	0.05
8	13	0.037
10	16	0.029
15	25	0.018
20	34	-
25	43	-
30	52	-

$$\text{induced room air} = \text{supplied cfm} * i$$

induced room air = cfm mixed for given throw

$$\text{Delta T (Throw)} = \text{Delta T (Supply)} * \text{Delta T Ratio}$$

$$\text{Delta T (Supply)} = T (\text{Room}) - T (\text{Supply})$$

$$\text{Delta T (Throw)} = T (\text{Room}) - T (\text{Throw})$$

How to Specify PLAY-C

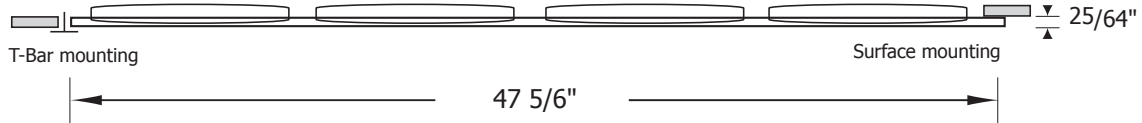
Supply and mounting of round diffuser with three individually adjustable sectors PLAY-C, dimension 25 inches or 625 mm. Airflow adjustment of each sector shall be strictly horizontal and 360 degrees. Constructed from galvanized steel face panel powder coated in white M9016. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

PLAY-R Adjustable Sectors Rectangular Diffuser

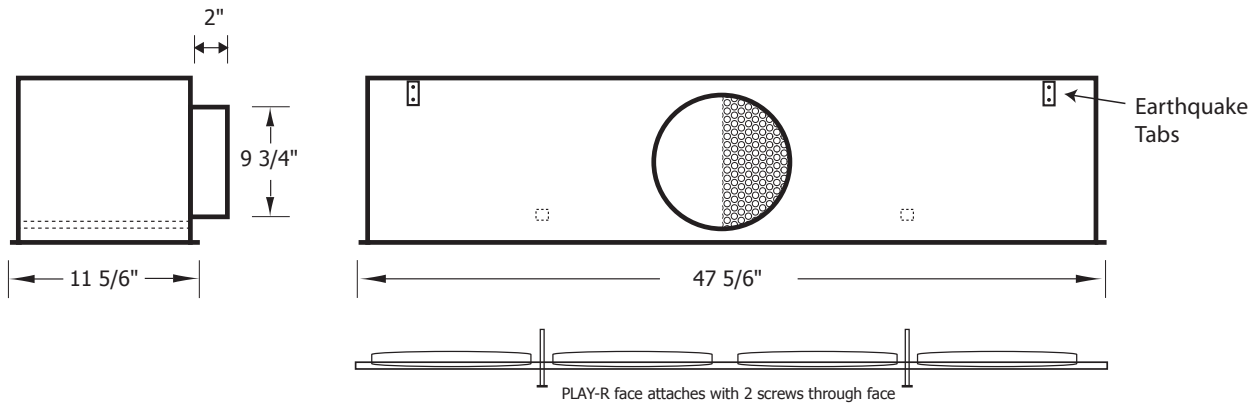
Dim	Free Area (sqf)	Min cfm	Max cfm
25" (625mm)	0.431	200	400



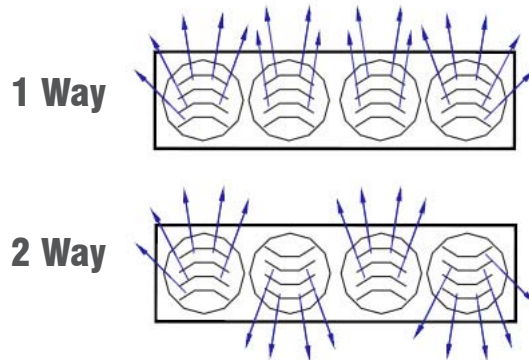
PLAY-R



PLAY-R Installation in Plenum



PLAY-R + PERFAIR or PLXOR Performance Data



PLAY-R + PERFAIR or PLXOR Performance Data (continued)

48" x 12" Face (Imperial)

1215 mm x 299 mm Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)	0.01	0.016	0.01	0.016	0.022	0.031	0.041	.062
6	CFM			79	98	118	137	157	196
	Pressure Loss (in.w.g.)			0.011	0.012	0.019	0.026	0.033	0.043
	NC			< 15	< 15	< 15	< 15	< 15	15
	Throw (ft)	2 Way			1-3-5	2-4-6	3-4-6	3-4-6	3-4-7
1 Way				4-7-12	5-7-12	6-9-15	6-10-16	7-12-19	8-14-21
8	CFM	70	105	140	175	209	244	279	349
	Pressure Loss (in.w.g.)	0.01	0.013	0.027	0.039	0.048	0.065	0.081	0.128
	NC	< 15	< 15	< 15	< 15	16	20	24	30
	Throw (ft)	2 Way	1-3-5	2-4-6	3-4-6	3-4-7	4-5-7	5-7-11	5-8-12
1 Way		4-6-11	5-8-13	6-10-16	8-13-21	8-14-21	10-16-24	10-17-25	
10	CFM	109	164	218	273	327	382	436	545
	Pressure Loss (in.w.g.)	0.014	0.032	0.05	0.08	0.11	0.14	0.18	0.24
	NC	< 15	< 15	17	23	28	32	36	42
	Throw (ft)	2 Way	2-4-6	3-3-5	4-6-9	5-8-12	6-10-15	7-11-17	7-12-19
1 Way		5-8-13	7-12-19	9-15-23	10-17-25	13-22-33			
12	CFM	157	236	314	393	471	550		
	Pressure Loss (in.w.g.)	0.026	0.059	0.087	0.144	0.192	0.245		
	NC	< 15	20	26	34	38	43		
	Throw (ft)	2 Way	3-4-6	4-7-10	6-9-14	7-11-18	8-13-21	9-14-23	
1 Way		6-10-16	9-16-24	12-20-29					

Performance Notes

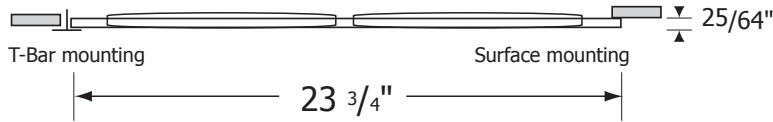
- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

Damper Correction Factor		100% Open	50% Open	10% Open
48"x12"	Pressure Loss	x 1	x 1.5	x 2.3
	NC	+0.7	+1.7	+2.4

How to Specify PLAY-R

Supply and mounting of rectangular diffuser PLAY-R with four individually adjustable sectors, dimension 48 inches x 12 inches (1215 mm x 299 mm). Airflow adjustment of each sector shall be strictly horizontal and 360 degrees. Constructed from galvanized steel face panel powder coated in white M9016. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

PLAY-S Adjustable Sectors Square Diffuser



**PLAY-S
(4-Way)**



1-Way



2-Way









3-Way



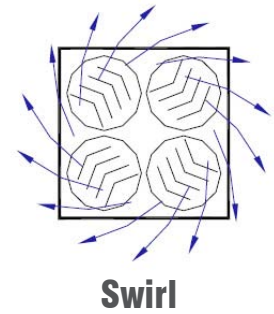
Swirl

Solve Existing Problems, Prevent Future Ones

-  Easily replace standard diffusers in existing buildings to fix current issues
-  Prevent AC wars in large office spaces
-  Stop creating new problems while trying to solve existing ones
-  Also great for new buildings with architectural and physical challenges
-  Equip your new building with the PLAY to cost efficiently deal with future problems
-  Just PLAY with it! Happy customers and employees are good for your business!

PLAY-S (Swirl) + PERFAIR or BOXSTAR Performance Data

Dim	Free Area (sqf)	Min cfm	Max cfm
24"x24" (605mm)	0.43	200	400



24" x 24" Face, Swirl Effect

605 mm x 605 mm Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H ₂ O)		0.002	0.006	0.01	0.016	0.022	0.031	0.041
6	CFM				98	118	137	157	196
	Pressure Loss (in.w.g.)				0.01	0.014	0.019	0.024	0.037
	NC				< 15	< 15	< 15	< 15	16
	Throw (ft) - Coanda Effect				2-2-4	2-3-4	2-3-5	2-4-6	3-5-7
	Throw (ft) - No Ceiling				1-2-3	1-2-3	2-3-4	2-3-4	2-4-5
8	CFM		105	140	175	209	244	279	349
	Pressure Loss (in.w.g.)		0.011	0.02	0.03	0.041	0.055	0.071	0.107
	NC		< 15	< 15	< 15	18	22	25	31
	Throw (ft) - Coanda Effect		2-3-4	2-3-5	3-4-6	3-5-7	3-6-9	4-6-10	5-8-12
	Throw (ft) - No Ceiling		1-2-3	2-3-4	2-3-5	2-4-6	3-4-6	3-5-7	4-6-9
10	CFM	109	164	218	273	327	382	436	545
	Pressure Loss (in.w.g.)	0.012	0.026	0.045	0.068	0.095	0.127	0.163	0.247
	NC	< 15	< 15	19	25	30	34	37	43
	Throw (ft) - Coanda Effect	2-3-4	2-4-6	3-5-8	4-6-10	4-8-11	5-9-13	6-10-15	9-16-24
	Throw (ft) - No Ceiling	1-2-3	2-3-4	2-4-6	3-5-7	3-6-8	4-6-10	4-7-11	7-12-18
12	CFM	157	236	314	393	471	550		
	Pressure Loss (in.w.g.)	0.024	0.052	0.088	0.134	0.188	0.251		
	NC	< 15	21	29	35	39	44		
	Throw (ft) - Coanda Effect	2-4-6	3-6-8	4-7-11	5-9-13	6-10-16	7-12-18		
	Throw (ft) - No Ceiling	2-3-4	3-4-6	3-5-8	4-7-10	5-8-12	5-9-14		

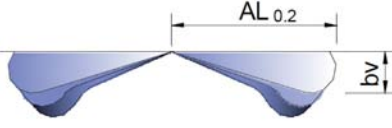
Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

Damper Correction Factor		100% Open	50% Open	10% Open
24"x24"	Pressure Loss	x 1	x1.5	x 2.3
	NC	+0.8	+1.7	+1.7

PLAY-S (Swirl) + PERFAIR or BOXSTAR Performance Data (continued)

Delta T Correction Factors		
ΔT (F)	Kh	KI
0	.039	1
-2	.042	.965
-4	.046	.93
-6	.05	.91
-8	.055	.86
-10	.065	.84
-12	.074	.82
-15	.099	.78



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 $AL_{0.2}$ = Distance at which velocity reaches 40 fpm

Ratios		
Throw (ft)	i	Delta T Ratio
4	7	0.092
6	12	0.059
8	14	0.043
10	18	0.034
15	28	0.023
20	40	0.017
25	49	-
30	61	-

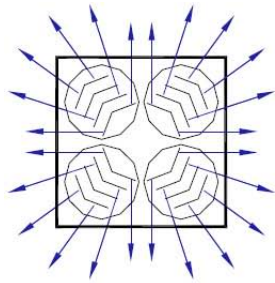
induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

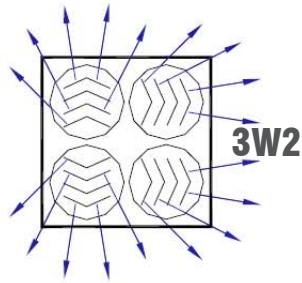
Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

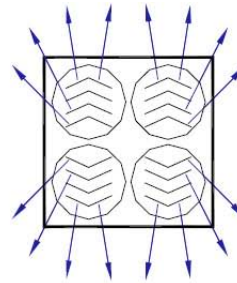
PLAY-S (Directional) + PERFAIR or BOXSTAR Performance Data



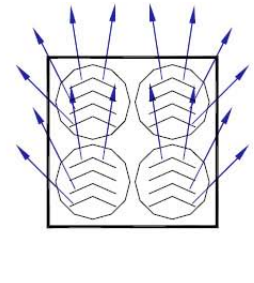
4 Way



3 Way



2 Way



1 Way

24" x 24" Face, Directional Throw

605 mm x 605 mm Face (Metric)

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000	
	Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041	.062	
6	CFM			79	98	118	137	157	196	
	Pressure Loss (in.w.g.)			0.003	0.01	0.014	0.019	0.024	0.037	
	NC			< 15	< 15	< 15	< 15	< 15	16	
	Throw (ft)	4W, 3W			2-3-4	2-4-5	2-4-6	3-5-7	3-6-8	3-6-9
		3W2, 2W			3-6-10	4-7-11	4-8-12	5-9-14	6-11-16	7-13-19
1W				5-9-13	6-10-13	6-11-16	7-12-18	8-14-21	10-17-25	
8	CFM	70	105	140	175	209	244	279	349	
	Pressure Loss (in.w.g.)	0.007	0.011	0.02	0.03	0.041	0.055	0.071	0.107	
	NC	< 15	< 15	< 15	< 15	18	22	25	31	
	Throw (ft)	4W, 3W	2-3-4	2-4-5	3-5-7	3-6-9	4-7-10	5-8-12	5-8-13	7-11-16
		3W2, 2W	3-6-10	4-7-11	5-9-14	7-12-18	8-14-21	9-16-24	10-17-26	13-22-34
1W		5-9-12	6-10-14	7-12-18	9-16-24	11-18-27	12-20-30	13-22-33	17-28-42	
10	CFM	109	164	218	273	327	382	436	545	
	Pressure Loss (in.w.g.)	0.012	0.026	0.045	0.068	0.095	0.127	0.163	0.247	
	NC	< 15	< 15	17	23	28	32	36	42	
	Throw (ft)	4W, 3W	2-4-5	3-5-8	4-7-10	5-8-13	6-10-15	7-11-17	8-13-19	9-16-24
		3W2, 2W	4-7-11	6-11-16	8-14-21	10-17-26	12-20-32	14-23-35	16-26-39	19-32-48
1W		6-10-14	8-14-21	11-18-27	13-22-33	16-26-39	18-30-45	20-34-51	25-42-63	
12	CFM	157	236	314	393	471	550			
	Pressure Loss (in.w.g.)	0.024	0.052	0.088	0.134	0.188	0.251			
	NC	< 15	21	28	34	39	43			
	Throw (ft)	4W, 3W	4-6-9	5-8-12	6-9-14	7-12-18	9-15-22	9-16-24		
		3W2, 2W	7-13-19	9-16-24	11-19-29	15-24-37	18-29-44	19-32-48		
1W		10-16-24	12-20-30	15-24-36	19-32-48	23-38-57	25-42-63			

Performance Notes

- NC Value based on 10 db room attenuation
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively
- Throw Values are with Coanda Effect. If no ceiling, multiply values by 0.75

Dim	Free Area (sqf)	Min cfm	Max cfm
24"x24" (605x605mm)	0.43	150	400

Damper Correction Factor		100% Open	50% Open	10% Open
24"x24" (605x605mm)	Pressure Loss	x 1	x 1.5	x 2.3
	NC	+0.8	+1.7	+1.7

How to Specify PLAY-S

Supply and mounting of square diffuser PLAY-S with four individually adjustable sectors, dimension 24 inches x 24 inches (605 mm x 605 mm). Airflow adjustment of each sector shall be strictly horizontal and 360 degrees. Constructed from galvanized steel face panel powder coated in white M9016. Shall be supplied and installed with PERFAIR high performance plenum box featuring integrated air equalizer and volume damper, security tabs, crossbar and long screw for easy face attachment. By EffectiV HVAC / MADEL.

How to Order PLAY Series

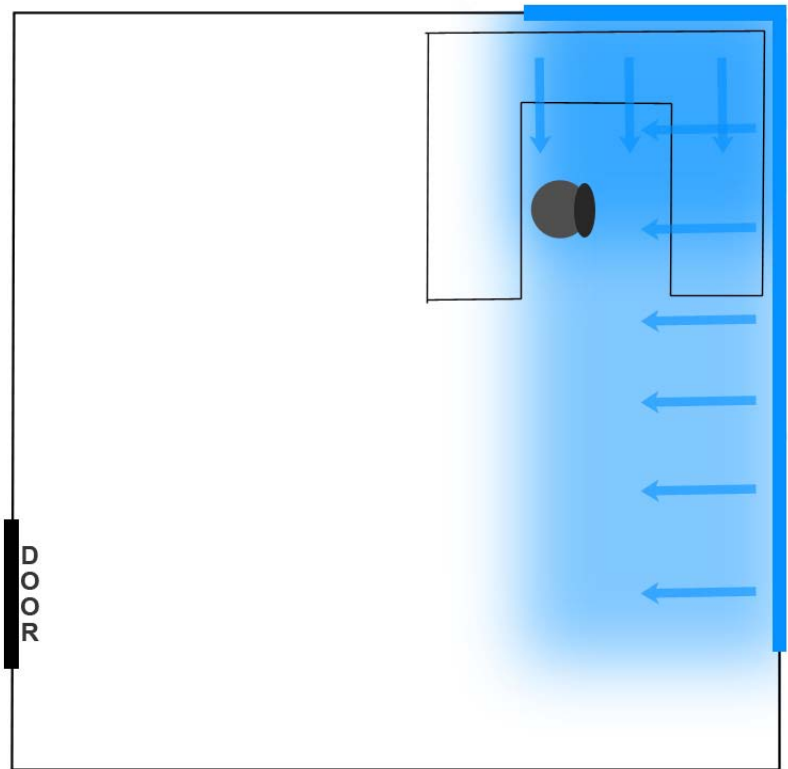
PLAY-	S	24	+ PERFAIR-ST	24	10
			Plenum	Neck Diameter 6" 8", 10" or 12" D	
				Face Dimension Match Product Face	
			PERFAIR- CS CT SS ST RS RT	Round, Side Connection	
				Round, Top Connection	
				Square, Side Connection	
				Square, Top Connection	
				Rectangular, Side Connection	
				Rectangular, Top Connection	
			Face Dimension	24	24"x24" Square Face
				25	25" Diameter Face
				36 12	36"x12" Rectangular Face
				48 12	48"x12" Rectangular Face
			Model	C	Round
				R	Rectangular
				S	Square

Simple Energy Saving Example - Small Office With Large Window

This is a simple example of how the PLAY Adjustable Diffuser can help save energy while improving the level of comfort. This example is for a closed office but could also apply to any other commercial space with large windows and other random sources of heat and cold.

In this example, the small closed office has a large corner window – also covering most of one of the walls. In the winter, the large window becomes a considerable source of heat loss and the area around the window feels really cold. The exact opposite happens in hot summer days. In both cases, the result is serious discomfort for the employee.

This is not fiction; as a matter of fact, it is a real example of an existing building. As we often see in small closed offices, this one had a single standard ceiling diffuser installed in the center of the room. Many solutions were tried to improve the level of comfort; one being the use of zoning and volume control to supply more conditioned air to the room in order to compensate for heat gain or loss. The obvious problem with this solution is that it consumes a lot more energy. Moreover, some of the over-heated or over-cooled air is sent directly throughout the door into an already well-conditioned space. Last but not least, we might end up with a relatively comfortable zone on the right side of the room, but at the expense of the left side of the room now being too cold or too hot.



The Solution

In order to efficiently solve that problem, what we really need is to supply more conditioned air concentrated towards the window. Yet we want to supply some conditioned air towards the rest of the room in order to avoid critical stratification and to keep room temperature as even and stable as possible. Ideally, we would rather avoid sending air directly throughout that door. Introducing the PLAY Adjustable Diffuser! The two pictures below show two different views of that office with the PLAY diffuser installed. One picture is taken from the door towards the window and the other one from the window towards the door.

View from door



View from window

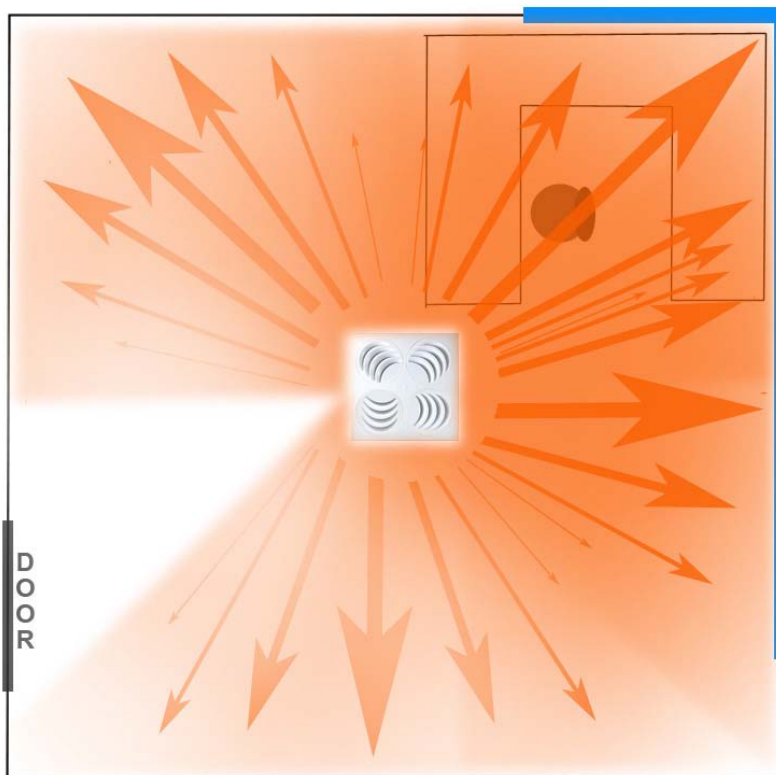


Simple Energy Saving Example - Small Office With Large Window

As you can see, the 4 sectors have been numbered to explain the configuration:

- Sector 1 is directed towards the windowed corner of the room.
- Sector 2 covers the rest of the windowed wall.
- Sector 3 covers the left corner, away from the door.
- Sector 4 covers the back wall, also away from the door.

View from above



In this example, we have reached the highest possible level of comfort in the most energy efficient way.

The PLAY is the only diffuser which is currently able to achieve this. A one-way, two-way or three-way diffuser would not have supplied air in the room efficiently as the PLAY; furthermore, they would have created stratification zones. Creating an air curtain with linear diffusers in front of the window is also great solution; however, it involves extra ducting and installation, resulting in much higher costs.

The PLAY adjustable diffuser is the easiest, most cost-effective way to achieve optimal results in such applications.

PLAY

Adjustable Sectors Diffusers



The ultimate toys for architects and engineers, PLAY diffusers combine innovative looks with versatile performance, providing both attractive designs and increased comfort levels. PLAY diffusers are the only diffusers on the market today which allow for the full and simple horizontal adjustment of airflow, from the face and with no need for tools.

PLAY WITH IT! Full adjustability allows for multiple air patterns



4 Way



3 Way



2 Way



1 Way



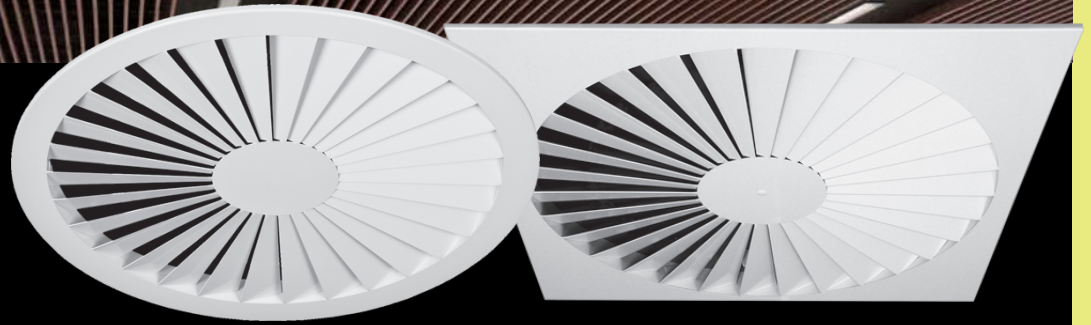
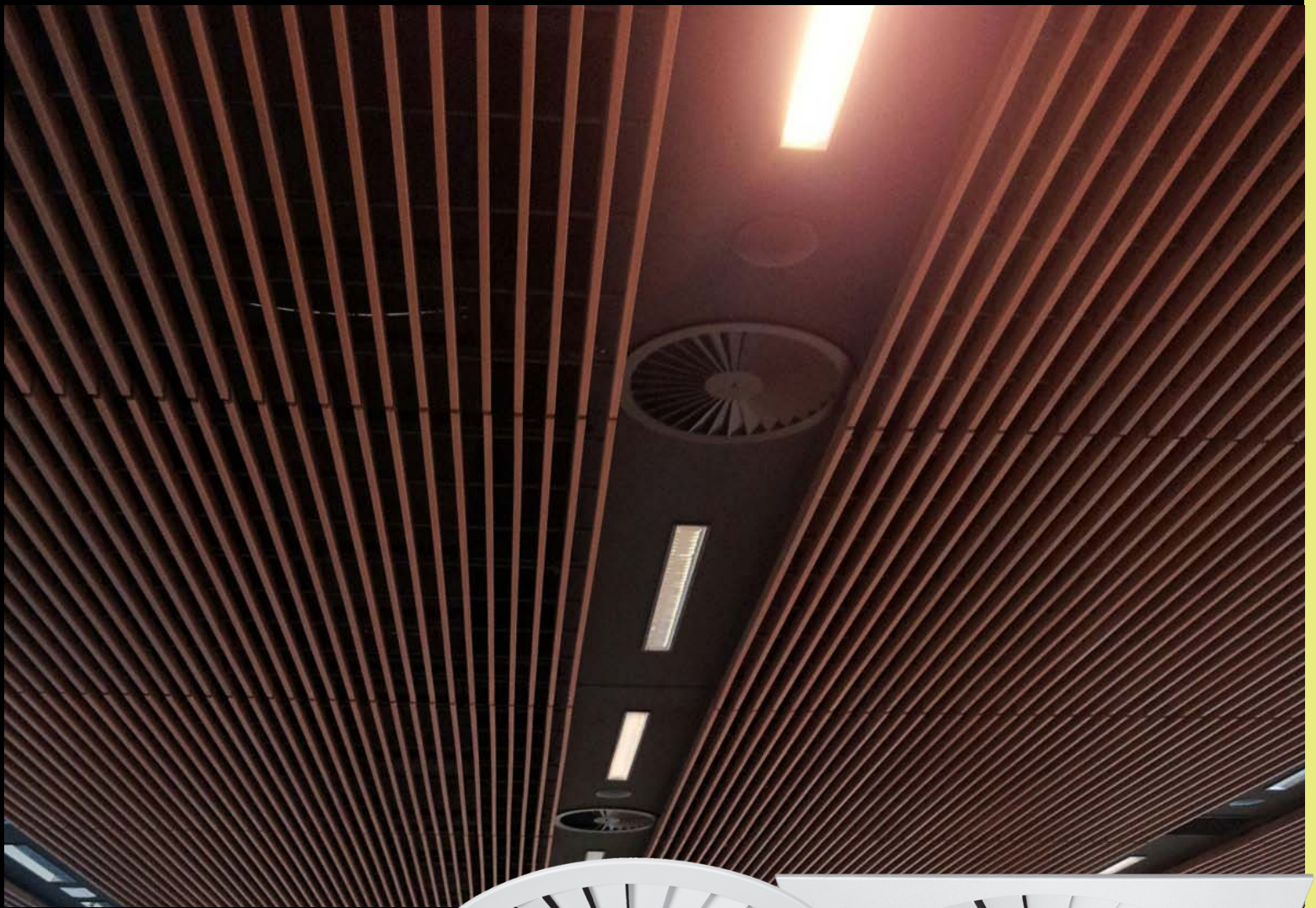
Swirl



Available in square, rectangular or circular shapes, PLAY diffusers are suitable for suspended ceiling, drywall and open ceiling applications.

Innovative Solutions by

EFFECTIVE  TM








RXO
Stamped Swirl Diffusers



RXO SERIES

Stamped Swirl Diffusers

-  Fixed swirl diffusion pattern
-  Available in square or round
-  Heavy-gauge steel construction
-  Matching High Performance PERFAIR Plenums
-  T-bar lay-in or surface mount
-  Ideal for cooling applications
-  Available in imperial and metric standard dimensions



RXO-S



RXO-C

RXO swirl diffusers are designed to be used in air conditioning, ventilation and heating applications. They can be mounted in false ceilings or suspended from the ceiling. The radial stamped blades design forces a swirl air diffusion pattern leveraging the coanda effect. RXO swirl diffusers provide a high level of induction rate, helping reducing room air stratification.

RXO series diffusers admit a flow variation of 60% keeping the air stream stable. These diffusers can be used in premises with ceilings 8.5 up to 13 feet (2.6 up to 4 meters) high and with a temperature differential up to 22°F (12°C).

Model Dimensions and Quick Selection

RXO-S Square Diffusers

Model	Imperial Dim	Metric Dim	Free Area (sqf)	Min cfm	Max cfm
RXO-S 16	16" x 16"	400 x 400 mm	0.178	88	241
RXO-S 20	20" x 20"	500 x 500 mm	0.362	176	353
RXO-S 24	24" x 24"	605 x 605 mm	0.538	294	476
RXO-S400 24	24" x 24"	605 x 605 mm	0.178	88	241
RXO-S500 24	24" x 24"	605 x 605 mm	0.362	176	353

RXO-C Round Diffusers

Model	Imperial Dim	Metric Dim	Free Area (sqf)	Min cfm	Max cfm
RXO-C 16	16" D	400 mm Dia	0.178	88	241
RXO-C 20	20" D	500 mm Dia	0.362	176	353
RXO-C 25	25" D	625 mm Dia	0.538	294	476

Some Applications



Office Spaces and Meeting Rooms



Schools



Restaurants, Bars, Hotels, Stores



VAV Applications



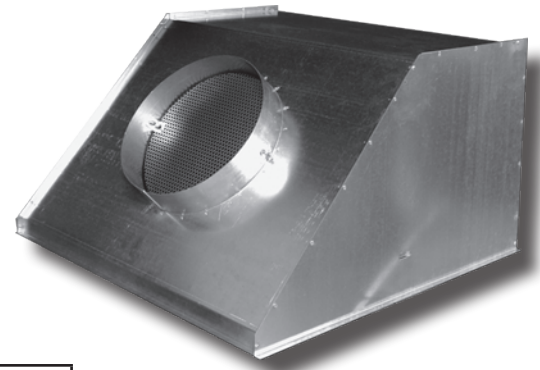
Comfort-critical applications



Plenum Selection

RXO swirl diffusers are available with a wide selection of PERFAIR plenums to suit any type of application. PERFAIR-SS with side connection is the most popular plenum for Square Diffusers and only requires 14" of ceiling space.

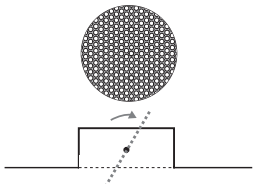
All PERFAIR plenums come with antiseismic tabs and perforated air volume damper / air equalizer.



PERFAIR-SS

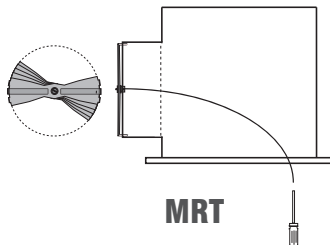
Plenum Model	Face Type	Connection	Recommended For
PERFAIR-CS	Round	Side	False or closed ceiling
PERFAIR-CT	Round	Top	Open ceiling with visible duct coming from top
PERFAIR-SS	Square	Side, Angle	False or closed ceiling
PERFAIR-SSS	Square	Side	Open ceiling with visible duct coming from side
PERFAIR-ST	Square	Top	Open ceiling with visible duct coming from top
PERFAIR-XS	Square	Side, Oval	Very limited ceiling space (6" min)
PERFAIR-XSS	Square	Side, Rect.	Very limited ceiling space (5" min)

Integrated Air Volume Dampers



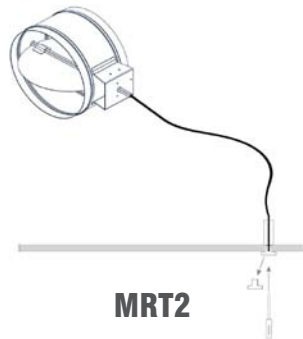
R

Perforated damper + air equalizer (Standard)



MRT

Manually operated damper, cable inside the plenum, adjustment through face



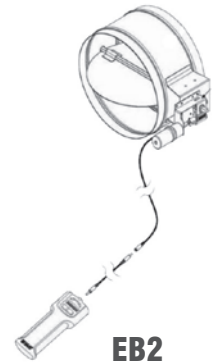
MRT2

Manually operated damper, cable through wall with termination fixture



EB

Battery operated electro-balance damper with remote control, cable through face



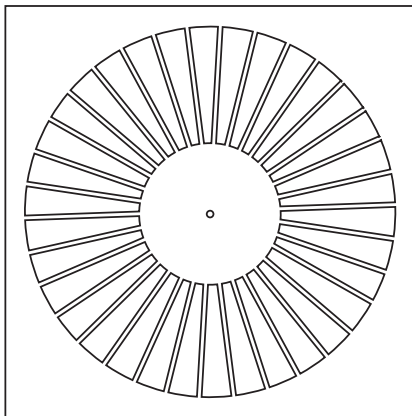
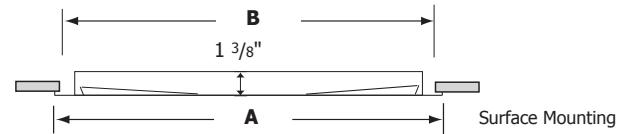
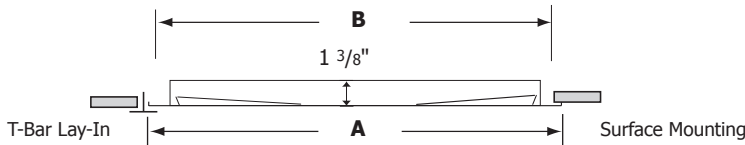
EB2

Battery operated electro-balance damper with remote control, cable through wall with termination fixture

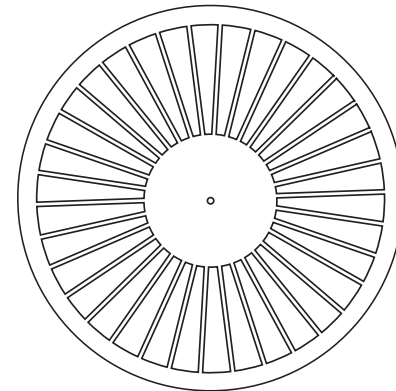
Dimensions

	Listed Size (Imperial)	Listed Size (Metric)	A (Imperial)	A (Metric)
RXO-S	16	400	15 34/64"	395
	20	500	19 31/64"	495
	24	605	23 5/8"	600

	Listed Size (Imperial)	Listed Size (Metric)	A (Imperial)	A (Metric)
RXO-C	16	400	15 3/4"	400
	20	500	19 11/16"	500
	25	600	24 39/64"	625



RXO-S



RXO-C

Performance Data - RXO-S 16 and RXO-S400 24 + PERFAIR

	Neck (fpm) Velocity	200	300	400	500	600	700
	Velocity Pressure (H2O)	.002	.006	.010	.016	.022	.031
Neck Size 8" (200mm)	CFM	70	105	140	175	209	244
	Pressure Loss (in.w.g.)	.013	.028	.048	.075	.105	.133
	NC	< 15	< 15	21	26	31	36
	Throw (ft) - Coanda Effect	1-2-3	2-3-5	3-4-7	4-6-9	4-7-11	5-8-13
	Throw (ft) - No Ceiling Effect	1-2-2	1-2-4	2-3-5	3-4-7	3-5-8	4-6-10

Performance Notes

- NC Value based on 10 db room attenuation
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

Performance Data - RXO-S 20 and RXO-S500 24 + PERFAIR

	Neck (fpm) Velocity	400	500	600	700	800	1000	1200
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	.090
Neck Size 8" (200mm)	CFM	140	175	209	244	279	349	419
	Pressure Loss (in.w.g.)	.024	.037	.053	.071	.092	.138	.203
	NC	11	16	20	25	28	34	39
	Throw (ft) - Coanda Effect	2-3-5	2-4-6	3-5-7	4-6-9	4-7-10	5-9-13	7-11-16
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-5	2-4-6	3-4-7	3-5-8	4-7-10	5-8-12

Performance Notes

- NC Value based on 10 db room attenuation
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

Performance Data - RXO-S 24 (24" x 24" or 605mm x 605mm) + PERFAIR

	Neck (fpm) Velocity	400	500	600	700	800	1000	1200
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	.090
Neck Size 10" (250mm)	CFM	218	273	327	382	436	545	654
	Pressure Loss (in.w.g.)	.015	.024	.034	.046	.059	.091	.106
	NC	12	18	23	28	32	38	42
	Throw (ft) - Coanda Effect	2-3-5	3-4-6	3-5-8	4-6-9	4-7-11	6-9-14	6-10-16
	Throw (ft) - No Ceiling Effect	1-2-4	2-3-5	2-4-6	3-5-7	3-5-8	4-7-11	5-8-12

Performance Notes

- NC Value based on 10 db room attenuation
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

Performance Data - RXO-C 16 (16" dia. or 400 mm dia.) + PERFAIR

	Neck (fpm) Velocity	200	300	400	500	600	700
	Velocity Pressure (H2O)	.002	.006	.010	.016	.022	.031
Neck Size 8" (200mm)	CFM	70	105	140	175	209	244
	Pressure Loss (in.w.g.)	.013	.028	.048	.075	.105	.133
	NC	< 15	< 15	21	26	31	36
	Throw (ft) - Coanda Effect	1-2-3	2-3-5	3-4-7	4-6-9	4-7-11	5-8-13
	Throw (ft) - No Ceiling Effect	1-2-2	1-2-4	2-3-5	3-4-7	3-5-8	4-6-10

Performance Notes

- NC Value based on 10 db room attenuation
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

Performance Data - RXO-C 20 (20" dia. or 500 mm dia.) + PERFAIR

	Neck (fpm) Velocity	400	500	600	700	800	1000	1200
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	.090
Neck Size 8" (200mm)	CFM	140	175	209	244	279	349	419
	Pressure Loss (in.w.g.)	.024	.037	.053	.071	.092	.142	.203
	NC	< 15	15	20	24	27	34	38
	Throw (ft) - Coanda Effect	2-3-5	2-4-6	3-5-7	4-6-9	4-7-10	5-9-13	7-11-16
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-5	2-4-6	3-4-7	3-5-8	4-7-10	5-8-12

Performance Notes

- NC Value based on 10 db room attenuation
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

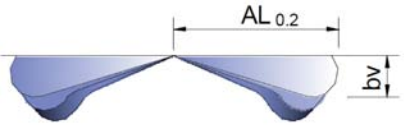
Performance Data - RXO-C 25 (25" dia. or 625 mm dia.) + PERFAIR

	Neck (fpm) Velocity	400	500	600	700	800	1000
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062
Neck Size 10" (250mm)	CFM	218	273	327	382	436	545
	Pressure Loss (in.w.g.)	.015	.024	.034	.046	.059	.091
	NC	< 15	17	23	27	31	38
	Throw (ft) - Coanda Effect	2-4-6	3-5-7	4-6-9	4-7-10	5-8-12	6-10-15
	Throw (ft) - No Ceiling Effect	2-3-4	2-4-5	3-4-7	3-5-8	4-6-9	5-7-11

Performance Notes

- NC Value based on 10 db room attenuation
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	0.04	1
-2	0.045	0.945
-4	0.051	0.905
-6	0.055	0.87
-8	0.06	0.84
-10	0.067	0.82
-12	0.077	0.785
-15	0.088	0.78



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

RXO Performance Data (continued)

Induction Ratio				
Throw (ft)	i 16" /400	i 20" /500	i 24" /605	i 25" /625
4	12	7	5	5
6	18	12	9	9
8	24	15	12	12
10	29	18	15	15
15	45	28	24	24
20	60	38	31	31
25	76	47	38	38
30	90	57	47	47

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Temperature Difference Ratio				
Throw (ft)	Delta T Ratio 16" /400	Delta T Ratio 20" /500	Delta T Ratio 24" /605	Delta T Ratio 25" /625
4	0.15			
6	0.075	0.092	0.115	0.115
8	0.05	0.065	0.08	0.08
10	0.038	0.047	0.06	0.06
15	0.022	0.027	0.034	0.034
20		0.018	0.024	0.024
25			0.017	0.017

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

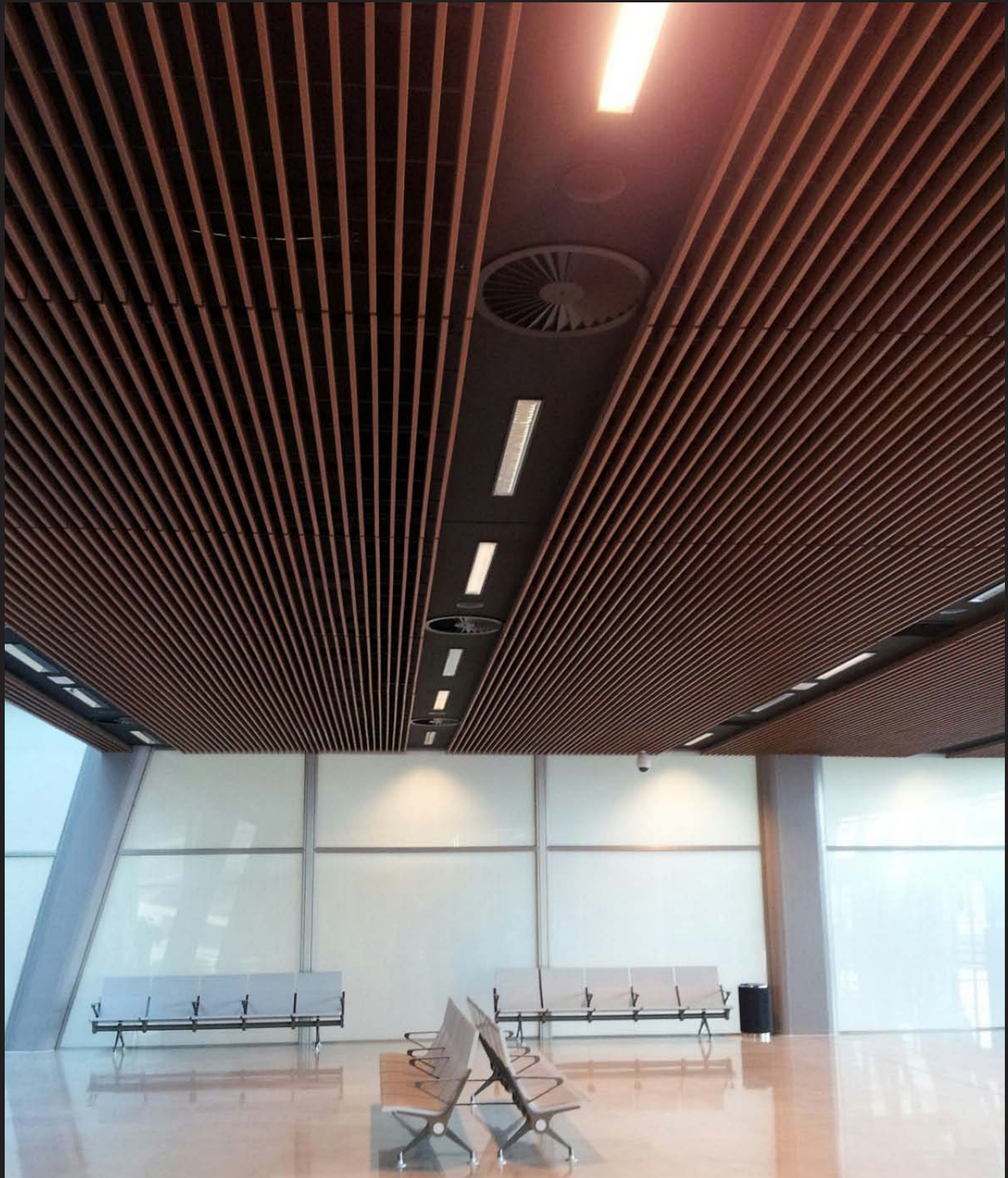
Delta T (Supply) = T (Room) - T (Supply)
Delta T (Throw) = T (Room) - T (Throw)

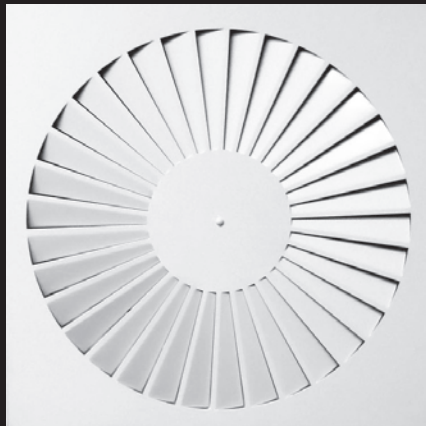
How to Specify RXO

Supply and mounting of fixed air pattern swirl diffuser RXO, constructed from galvanized steel and powder coated in white M9016. To be supplied with matching PERFAIR high performance plenum. By EffectiV HVAC / MADEL.

How to Order RXO Series

RXO-	S	24	+ PERFAIR-ST	24	10
			Plenum	Neck Diameter	6" 8", 10" or 12" D
				Face Dimension	Match Product Face
			Face Dimension	PERFAIR-CS	Round, Side Connection
				PERFAIR-CT	Round, Top Connection
				PERFAIR-SCT	Cylindrical for Sq. Face, Top Conn.
				PERFAIR-SS	Square, Side Connection
				PERFAIR-ST	Square, Top Connection
				16	16" Diameter Face
				20	20"x20" or 20" Dia. Face
			24	24"x24" Square Face	
			25	25" Diameter Face	
			400	400 mm Diameter Face	
			500	500x500 mm or 500 mm Dia. Face	
			605	605x605 mm Square Face	
			625	625 mm Diameter Face	
			Model	C	Round
				S	Square













TWIST
Compact Stamped Swirl Diffusers

EFFECTIVE  TM

The logo for EFFECTIVE features the word "EFFECTIVE" in a bold, sans-serif font. To the right of the word is a stylized graphic consisting of two parallel, slanted lines that curve upwards and to the right, resembling a checkmark or a dynamic arrow. Below this graphic is a small "TM" trademark symbol.

TWIST SERIES

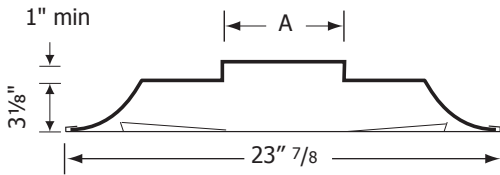
Compact Stamped Swirl Diffusers

-  Fixed swirl diffusion pattern
-  Fixed integrated backpan with die-drawn collar
-  Heavy-gauge steel or aluminum construction
-  Available with insulation and drawn collar (TWIST-IR6)
-  TWIST-CUT has pre-scored R6 insulated back to cut your own neck (one size fits all)
-  Ideal for t-bar lay-in
-  Ideal for heating and cooling applications
-  R6 fiberglass insulation complies with A.S.T.M. E84 flame and smoke test

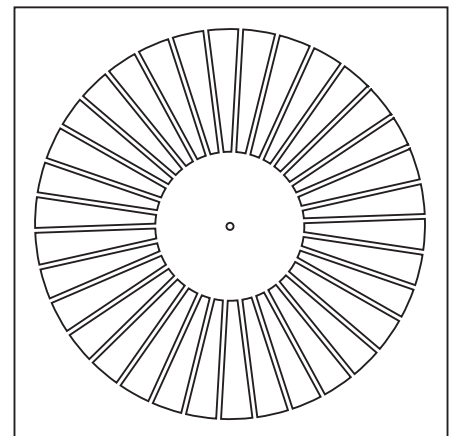
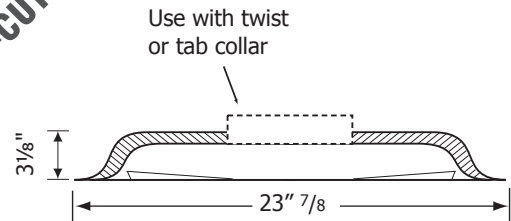


TWIST

TWIST



TWIST-CUT



TWIST series diffusers by EffectiV HVAC™ supply air in a fixed 360° radial swirl pattern, mixing the air more evenly and efficiently than standard diffusers. The TWIST diffuser comes with its own integrated backpan and is very compact. It can be viewed as an economical alternative to the RXO-S diffuser.

TWIST diffusers are ideal for VAV applications and applications which require rapid temperature and velocity equalization of the mixed air mass above the zone of occupancy.

TWIST-CUT diffusers are supplied with pre-scored R6 molded fiberglass plenum for a one-size-fits-all approach.

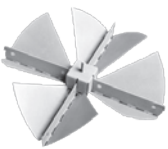
TWIST Performance Data

Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000	1200	1400
	Velocity Pressure (H2O)			.010	.016	.022	.031	.041	.062	.090	.122
6	CFM	34	59	79	98	118	137	157	196	236	275
	Pressure Loss (in.w.g.)	0.004	0.011	0.02	0.04	0.06	0.07	0.10	0.13	0.21	0.31
	NC	< 20	< 20	< 20	< 20	< 20	< 20	20	< 25	< 35	< 40
	Throw (ft)	1-1-3	1-2-4	2-3-5	2-3-6	3-4-6	3-5-7	3-4-7	4-6-8	4-7-10	5-7-10
8	CFM	70	105	140	175	209	244	279	349	419	489
	Pressure Loss (in.w.g.)	0.008	0.016	0.03	0.05	0.07	0.09	0.12	0.18	0.26	0.33
	NC	< 20	< 20	< 20	< 20	< 20	< 30	< 35	< 40	> 40	> 40
	Throw (ft)	1-2-3	2-3-4	3-3-5	3-3-7	3-4-7	3-5-10	4-5-9	5-7-11	7-7-14	8-9-12
10	CFM	109	164	218	273	327	382	436	545	654	764
	Pressure Loss (in.w.g.)	0.01	0.02	0.04	0.07	0.11	0.15	0.19	0.30	0.43	0.50
	NC	< 20	< 20	< 20	< 25	< 30	35	< 40	> 40	> 40	> 40
	Throw (ft)	1-2-4	2-3-6	3-4-8	4-5-10	4-6-10	5-8-12	6-8-12	8-9-13	8-10-14	9-11-16
12	CFM	157	239	314	393	471	550	628	785	942	
	Pressure Loss (in.w.g.)	0.024	0.05	0.10	0.14	0.22	0.27	0.36	0.56	0.78	
	NC	< 20	21	25	< 35	35	40	45	> 45	> 45	
	Throw (ft)	2-3-5	3-4-8	4-6-10	5-6-11	5-8-14	6-9-14	7-9-16	10-12-16	11-12-19	


Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **150 fpm, 100 fpm and 50 fpm** respectively.

Accessories



OBD
Opposed Blade Damper



RSBD
Radial Sliding Blade Damper

How to Specify TWIST

Supply and mounting of steel stamped swirl diffuser model TWIST with integral plenum and drawn collar, square dimension 24"x24". Constructed from heavy gauge galvanized steel, powder coated in white RAL9016. By EffectiV HVAC.

How to Specify TWIST-CUT

Supply and mounting of steel stamped swirl diffuser model TWIST with integral plenum and R6-rated molded fiberglass back pre-scored for 6" to 12" collars, square dimension 24"x24". Constructed from heavy gauge galvanized steel, powder coated in white RAL9016. By EffectiV HVAC.

How to Specify TWIST-ALU

Supply and mounting of aluminum stamped swirl diffuser model TWIST with integral plenum and drawn collar, square dimension 24"x24". Constructed from heavy gauge aluminum, powder coated in white RAL9016. By EffectiV HVAC.

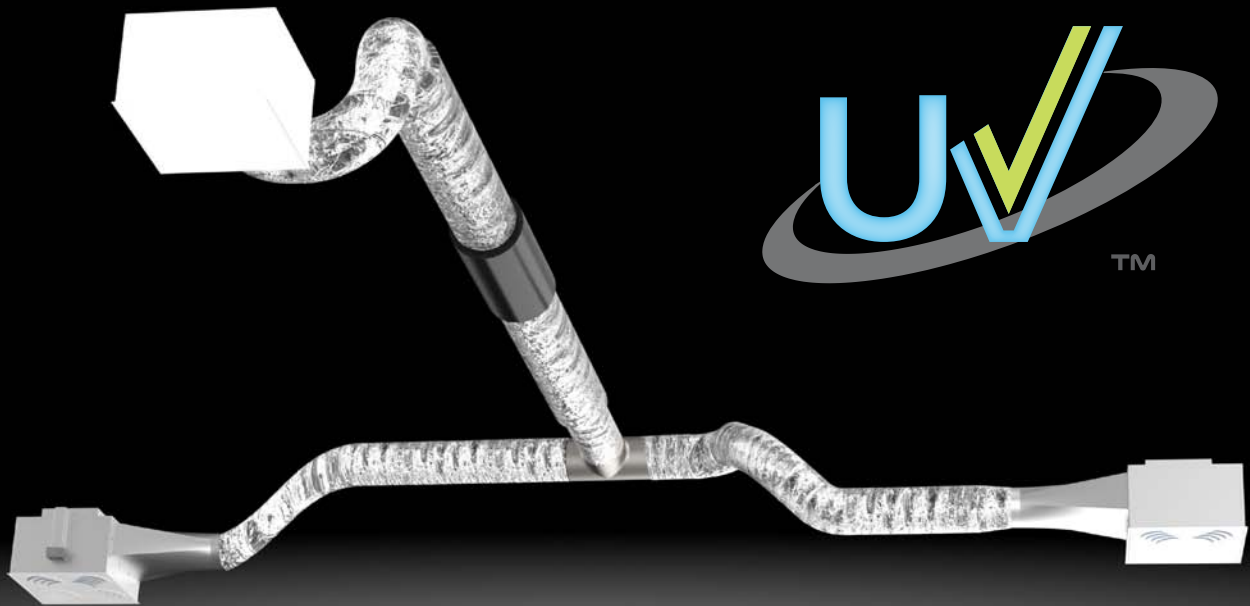
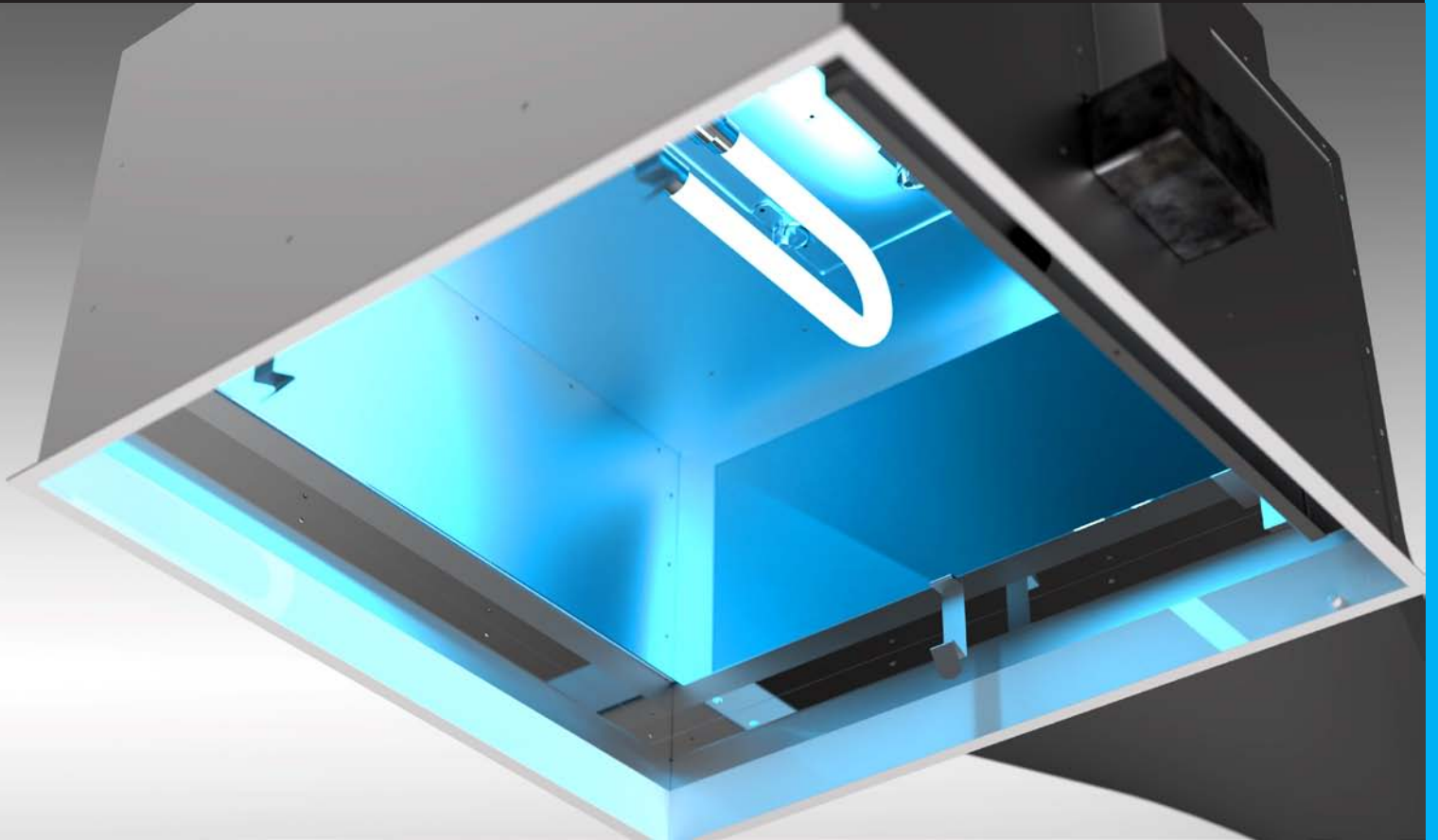
How to Specify TWIST-ALU-CUT

Supply and mounting of aluminum stamped swirl diffuser model TWIST with integral plenum and R6-rated molded fiberglass back pre-scored for 6" to 12" collars, square dimension 24"x24". Constructed from heavy gauge aluminum, powder coated in white RAL9016. By EffectiV HVAC.

How to Order TWIST Series

TWIST	-IR6	-OBD	24	08	
					06 6"D
				08	8"D
				10	10"D
				12	12"D
			Face Dimension	24	24" x 24"
		Damper		OBD	Opposed Blade Damper
				RSBD	Radial Sliding Blade Damper
		Insulation		IR6	R6 molded fiberglass
Model				TWIST	Steel, drawn collar
				TWIST-CUT	Steel, R6 Molded Fiberglass Back
				TWIST-ALU	Aluminum, drawn collar
				TWIST-ALUCUT	Alu, R6 Molded Fiberglass Back

AIR PURIFICATION





AXO-HEPA
High Induction Swirl Diffusers with HEPA Filter

EFFECTIVE  TM

AXO SERIES

High Induction Swirl Diffusers with HEPA Filter



99.995% High efficiency H14 HEPA filter included



Removable face for easy access and filter change



High induction airflow for high efficiency air mixing and faster removal of contaminants



Individually adjustable high induction mixing vanes, available in black or white



Multiple sizes available of optimal supply between 70 cfm and 460 cfm



Adjustable from horizontal swirl to directional or downward



High tolerance to air volume and temperature variations



High air flow at relatively low sound power



High induction causes rapid reduction of air velocity and temperature difference



AXO-HEPA 538

AXO-HEPA High Induction Swirl Diffusers with HEPA Filter by EffectiV HVAC™ and MADEL® have the dual function of filtering the air and diffusing the filtered air in the room, both with very high efficiency.

It consists of a plenum box made from polystyrene with a circular intake on the side, equipped with a removable high induction swirl diffuser face for high turbulence airflow.

AXO-HEPA diffusers are equipped with a pressure intake that controls pressure loss in the filter. AXO-HEPA units are suitable for installations that require very pure, germ-free air such as clean rooms and pharmaceutical laboratories.

H14 filters for terminal units are provided with an extruded aluminum frame finished with epoxy paint, and both sides are provided with a protective aluminum grille. The mini pleated filter pack made of micro fiberglass maintains the proper shape via spacers by continuous hot fusion.

The design of the filter assembly with micro fiberglass ensures minimal pressure drop and laminar flow.

The structure is sealed with elastomer polyurethane to eliminate the risk of air bypass.

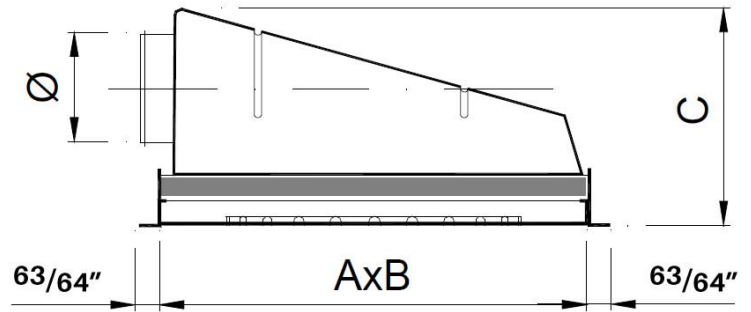
Each filter is tested and labelled according to EN 1822. The test report is delivered with each product.

The individually adjustable vanes support multiple angles to adapt the airflow to virtually any environment. The design of the induction vanes and radial arrangement supplies the air in a swirl pattern while leveraging the Coanda effect.

The resulting high induction airflow mixes the room air more efficiently than other diffusers. The benefits of high induction are reduced stratification and more even temperature in the room, improved thermal comfort, increase in energy efficiency, and efficient removal of contaminants in the room.

The AXO series diffusers admit a flow variation of 60% while keeping the air stream stable. For optimal conditions, AXO-HEPA diffusers may be used in ceilings 8.5 up to 13 feet (2.6 up to 4 meters) high, with a temperature differential up to 22°F (12°C).

Quick Selection



Model	A x B	C	Neck	Min cfm	Max cfm	Nominal cfm	Pressure Drop (in.w.g.)
AXO-HEPA 330	12 63/64"	13 37/64"	6 3/4"	71	106	88	0.602
AXO-HEPA 482	18 31/32"	13 37/64"	6 3/4"	188	282	235	0.602
AXO-HEPA 538	21 3/16"	14 3/8"	7 3/4"	235	353	294	0.602
AXO-HEPA 635	25"	14 3/8"	7 3/4"	306	459	382	0.602

Note: Min cfm and Max cfm are recommended values for optimal performance and can be exceeded in VAV applications.

HEPA FILTER

Model #	RH14
Effectiveness MPPS	99.995%
Classification EN 1822:2009	H14
Final Pressure Drop	1.606 in.w.g.
Maximum Pressure Drop	25"
Maximum Relative Humidity	90%



FINISH

Choice of anodized aluminum or galvanized steel powder coated in white RAL9010, with either black or white induction vanes.



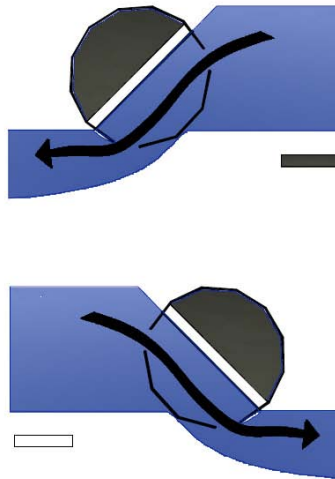
Plenum

White polystyrene plenum box with circular side duct connection, and a pressure intake to control filter pressure loss.

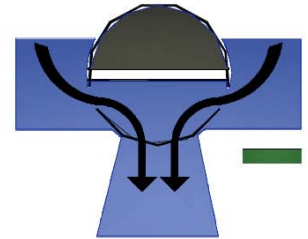


AXO Vanes Positioning

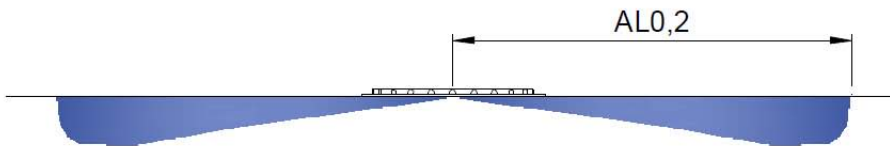
HORIZONTAL SUPPLY.
POSITION 1.



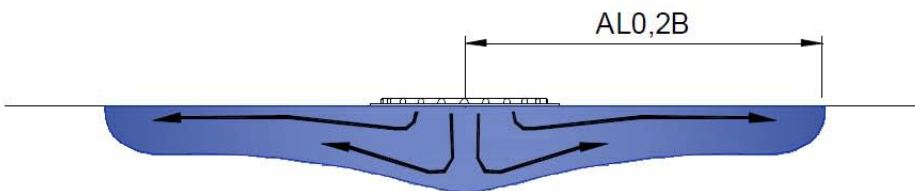
VERTICAL SUPPLY.
POSITION 2.



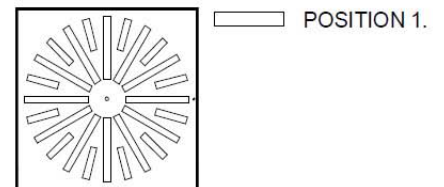
TYPE A. 100% POSITION 1.



TYPE B. 50% POSITION 1 AND 50% POSITION 2.



$AL_{0.2}$ = Distance at which velocity reaches 40 fpm



Type B Throw Correction Factor	
Dim	Correction Factor
24" x 24" (605mm)	0.74

Type B = 50% position 1, 50% position 2

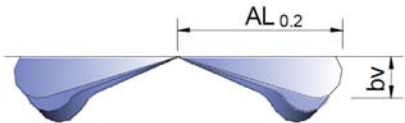
AXO-HEPA Performance Data

Model	Neck (fpm) Velocity	200	300	400	500	600	700	800	900	1000
330	CFM	53	80	107	134	160	187	214	241	267
	Pressure Loss (in.w.g.)	0.422	0.562	0.703	0.783					
	NC	< 15	22	30	35					
	Throw (ft) - Coanda Effect	2-3-4	3-4-7	4-6-9	5-7-11					
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-5	3-4-7	3-6-9					
482	CFM	53	80	107	134	160	187	214	241	267
	Pressure Loss (in.w.g.)	0.221	0.289	0.357	0.426	0.466	0.51	0.562	0.602	0.643
	NC	< 15	< 15	< 15	16	20	24	27	30	33
	Throw (ft) - Coanda Effect	1-2-3	2-3-4	2-4-6	3-5-7	4-6-9	4-7-10	5-8-12	5-9-13	6-10-15
	Throw (ft) - No Ceiling Effect	1-1-2	1-2-3	2-3-4	2-4-6	3-4-7	3-5-8	4-6-9	4-7-10	4-7-11
538	CFM	70	105	140	175	209	244	279	314	349
	Pressure Loss (in.w.g.)	0.229	0.301	0.361	0.426	0.49	0.522	0.566	0.614	0.663
	NC	< 15	< 15	< 15	18	23	27	30	34	36
	Throw (ft) - Coanda Effect	1-2-3	2-3-5	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-9-14	6-10-16
	Throw (ft) - No Ceiling Effect	1-2-2	1-2-4	2-3-5	2-4-6	3-5-7	3-5-8	4-6-9	4-7-11	5-8-12
635	CFM	70	105	140	175	209	244	279	314	349
	Pressure Loss (in.w.g.)	0.193	0.261	0.313	0.361	0.418	0.454	0.49	0.522	0.562
	NC	< 15	< 15	< 15	< 15	16	19	22	25	27
	Throw (ft) - Coanda Effect		2-3-4	2-3-5	3-4-7	3-5-8	4-6-9	4-7-11	5-8-12	5-9-13
	Throw (ft) - No Ceiling Effect		1-2-3	2-3-4	2-3-5	2-4-6	3-5-7	3-5-8	4-6-9	4-7-10

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm** respectively.

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Induction Ratio						
Throw (ft)	i 330	i 482	i 538 (A)	i 538 (B)	i 635 (A)	i 635 (B)
4	10	7	6	9	7	7
6	17	13	12	17	9	14
8	23	18	16	24	11	19
10	29	24	20	30	16	25
15	48	39	33	50	26	42
20	65	55	46	73	37	60
25	100	72	58	97	47	80

induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T Ratio				
Throw (ft)	330	482	538	635
4	0.046	0.052	0.082	0.115
6	0.028	0.034	0.047	0.068
8	0.022	0.026	0.035	0.052
10	0.017	0.019	0.028	0.04
15	-	-	0.018	0.027
20	-	-	0.01	0.02
25	-	-	-	0.016

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)

Delta T (Throw) = T (Room) - T (Throw)

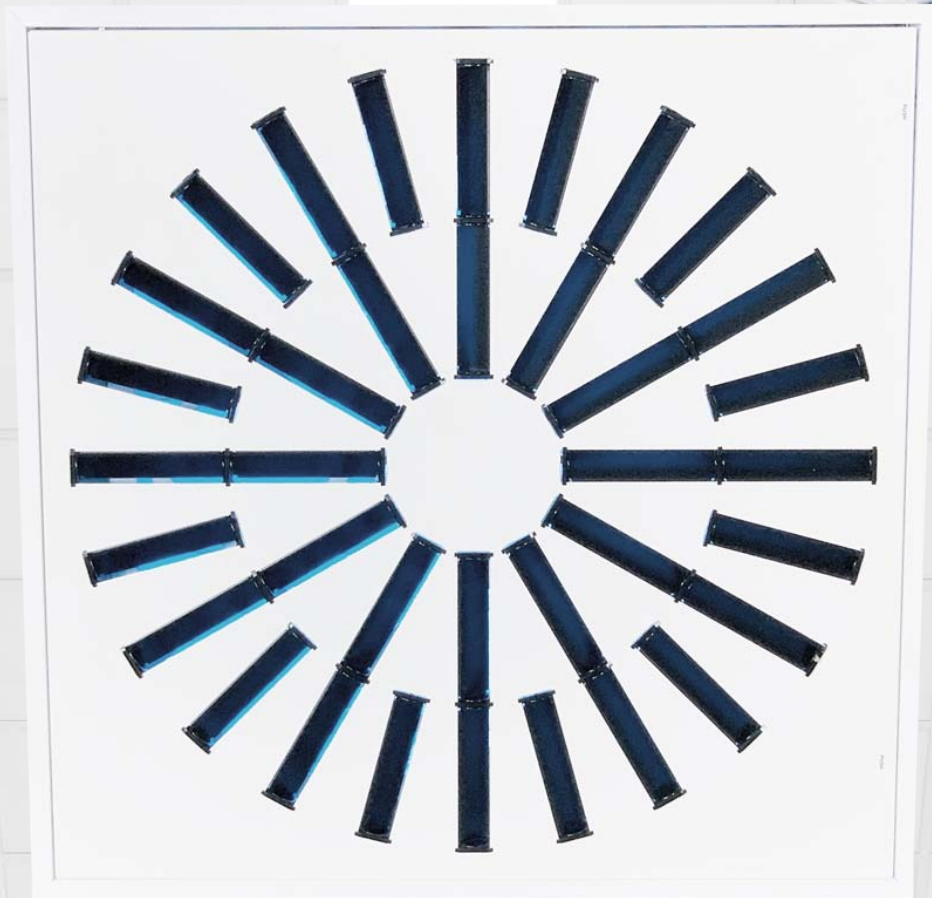
How to Specify AXO-HEPA

Supply and mounting of high induction swirl diffuser model AXO with individually adjustable radial vanes. Removable face panel made in anodized aluminum or galvanized steel powder coated in white M9010, integrated in a white polystyrene plenum box with circular side duct connection. Shall include a HEPA filter H14 with a pressure intake to control filter pressure. ABS adjustable diffusion vanes shall have airflow straighteners on the back of the vanes. By EffectiV HVAC / MADEL.

How to Order AXO-HEPA Series

AXO-HEPA	-AB	538	/AA	
			Finish	
				AA Adnodized Aluminum
				M9010 Powder Coated RAL 9016
		Dimension		
				330 71 - 106 cfm
				482 188 - 282 cfm
				538 235 - 353 cfm
				635 306 - 459 cfm
	Induction Vanes Color			
				AB White Induction Vanes
				AN Black Induction Vanes





PATENT PENDING














AXO-UV

High Induction Swirl UV Diffusers



AXO-UV SERIES

High Induction Swirl UV Diffusers

-  UV Diffusers help contain the spread of viruses and bacteria through ventilation systems
-  3-in-1 solution combining UV-C irradiation, air filtration and improved air mixing and room ventilation
-  Single-pass deactivation of airborne viruses and bacteria
-  Tested with the real SARS-CoV-2 virus in a 3rd party laboratory, achieving a 99.949% single-pass virus deactivation at 458 cfm
-  Hinged face provide easy access for filter change and maintenance
-  Four models to supply air volumes between 50 cfm and 550 cfm
-  Suitable for new buildings and existing buildings
-  High discharge velocity provide efficient mixing of supplied air with room air
-  High induction improves thermal comfort and energy efficiency
-  Available in steel and aluminum construction
-  Built-in earthquake tabs



AXO-UV

PATENT PENDING



UV Diffusers by EffectiV treat the recycled air in commercial and institutional to help prevent the spread of airborne viruses and bacteria through the ventilation system. They are a 3-in-1 solution cleaning recycled air from pathogens using UV-C light, filtering the air from larger particles with a MERV-9 filter, and improving air mixing and room ventilation. By treating the air at the end of the duct line and by optimizing both the UV light intensity and microbes' exposure time inside the irradiation chamber, UV Diffusers achieve very high single-pass microbial deactivation rates.

They are a practical solution which can be installed in most existing buildings without other significant upgrades, and offer easy access for maintenance and filter replacement. They are also an energy efficient solution to treat the air.







AXO-UV high induction swirl diffusers are designed to be used in air conditioning, ventilation and heating systems at a temperature differential up to 22°F (12°C) and a maximum temperature of 110°F (43°C). They can be mounted in false ceilings, on drywall, or suspended from the ceiling, from 8.5 feet to 13 feet (2.6 up to 4 meters) high. AXO diffusers allow a flow variation of 60% while keeping the air stream stable.

AXO High Induction Diffusers are available in four models covering different ranges of air volumes between 50 cfm and 550 cfm. They also deliver the highest induction ratio, mixing the air more efficiently than any other diffuser in a 360-degree diffusion pattern. AXO diffusers offer a very reliable performance in VAV applications in both heating and cooling.

AXO can also be adjusted to send the air in specific directions or downwards.

AXO-UV diffusers are the only UV diffusers available in both steel and aluminum.

Applications

-  Office Buildings
-  Healthcare, Hospitals, Dental Clinics
-  Nursing Homes
-  Schools
-  Hospitality, Restaurants
-  Retail, Shopping Malls



PREVENTING THE SPREAD OF VIRUSES AND BACTERIA THROUGH VENTILATION SYSTEMS IN COMMERCIAL BUILDINGS

Some airborne virus particles are too small to be entirely caught by standard filters. Also, the greater the filter efficiency is, the more pressure is added to the HVAC system. Most ventilation systems in commercial and institutional buildings recycle and recirculate a large percentage of the air without proper treatment and filtration. This is done in order to save energy, but quite problematic when dealing with airborne diseases. Microbes can easily spread between rooms via the ventilation system.

UV Diffusers are a high efficiency single-pass solution to treat recycled air. Diffusers are the last thing that the air passes through before entering the room, making any possible re-contamination of the air impossible. Once UV Diffusers are installed in a space, they act as a shield against pathogens and contaminants, protecting that room from the rest of the building.

UV Diffusers can replace existing diffusers in the whole building, or be installed in a single space. Easy access to ceiling diffusers gives building owners and occupants a lot of flexibility in implementing this solution.

The use of this device is a supplement to and not a substitute for standard infection control practices; users must continue to follow all current infection control practices, including those related to the cleaning and disinfection of environmental surfaces.



AXO-UV Model Selection



AXO-S300-UV

50 - 160 cfm



AXO-S400-UV

100 - 250 cfm



AXO-S-UV

230 - 500 cfm



AXO-SX-UV

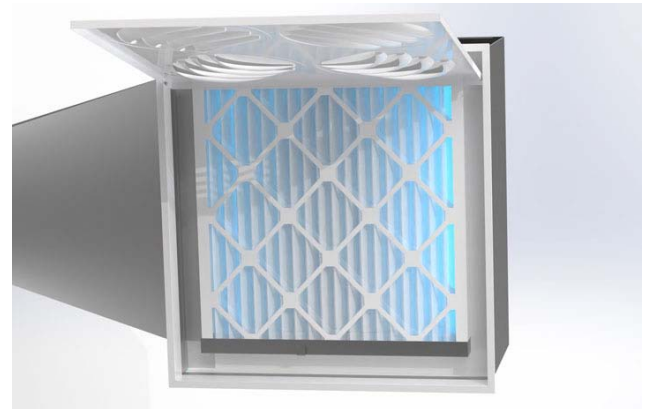
300 - 550 cfm

How UV Diffusers Work

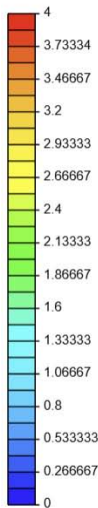
1. Air Filtration

UV Diffusers integrate a UV-resistant MERV-9 or MERV-7 filter to catch larger particles including dust, spores and mites, removing allergens and other irritants, and improving air quality.

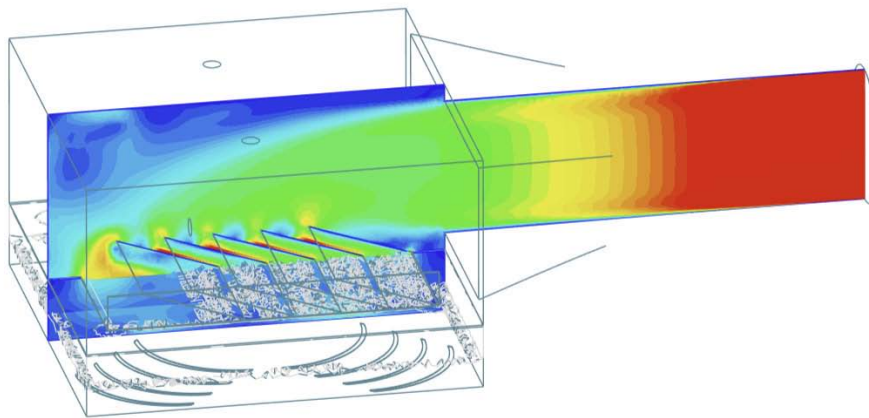
The filter also helps to pressurize the air inside the plenum and slow it down significantly.



All Velocity (m/s)

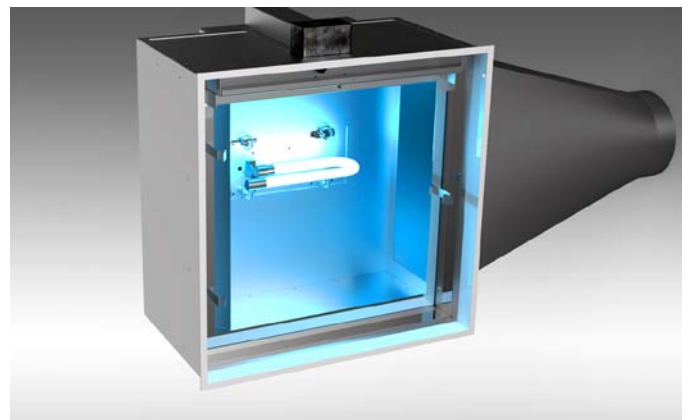


350 cfm

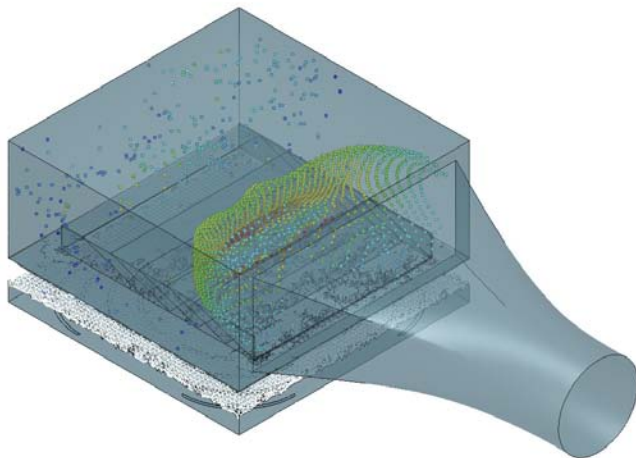
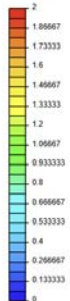


2. UV-C Germicidal Irradiation

UV Diffusers also integrate a UV-C lamp to irradiate viruses and bacteria. The air velocity being significantly lower in the diffuser than it is in the duct, pathogens exposure to UV-C light and therefore disinfection efficiency are multiplied by a factor of 2 to 8 times.



All Velocity (m/s)



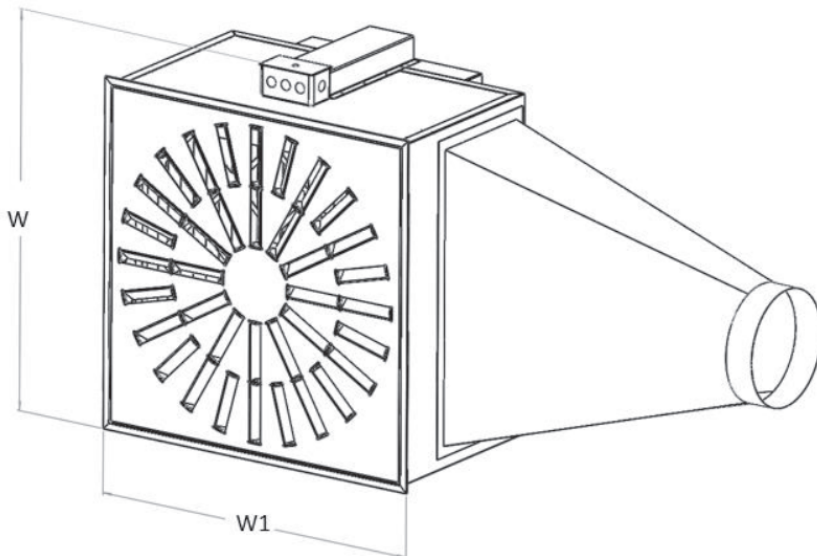
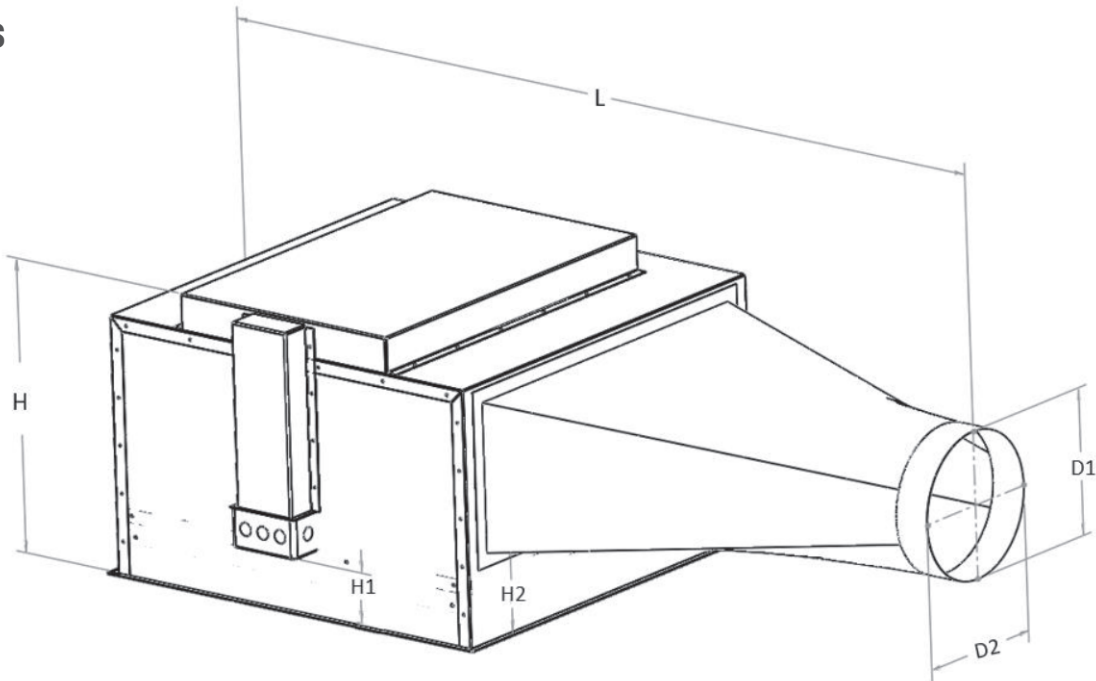
The placement of the UV lamp, the airflow trajectory, the shape and dimension of the plenum and collar for light reflection and the materials - everything has been thought out in order to improve air disinfection efficiency.

3. Improved Ventilation

AXO-UV high induction swirl UV diffusers supply the air with a high discharge velocity and feature a very high induction ratio, mixing the air more efficiently than any other diffuser in a 360-degree diffusion pattern. AXO diffusers also offer reliable performance in VAV applications. The result is an improved room ventilation and faster removal of contaminants. Another benefit is a significant improvement of occupants' thermal comfort. Better air mixing can also help optimizing the performance of the HVAC system and reduce energy consumption.



Dimensions



Dimensions	
W	25 2/3"
W1	23 7/8"
H	15 7/8"
H1	3 9/16"
H2	4 3/4"
L	47 1/2"

Duct Diameter	D1	D2
6"	5 7/8"	5 7/8"
7"	6 7/8"	6 7/8"
8"	7 7/8"	7 7/8"
10"	11"	8"
12"	16"	8"

Safety

UV Diffusers certified UL in USA and Canada for safety in regards to electrical and UV irradiation hazards. UV-C light is contained within the diffuser in order to ensure room occupants' safety.

Interlock switches are also in place to ensure maintenance personnel's safety.

High quality lamps made of quartz do not emit any ozone nor other harmful particles. UV Diffusers are certified Zero Ozone Emission by UL

UV Diffusers are also certified by the California Air Resources Board



Mechanical Specifications

Maximum Product Weight	34 lbs
Hinged Face	Yes
Removable Face	Yes
Filter Replacement Through Face	Yes
UV Lamp Replacement Through Face	Yes

Electrical Specifications

Diffuser Voltage	120 V / 240 V
UV Diffuser Wattage	40 W
Safety Switch - Opened Face	Yes
Safety Switch - No UVC Barrier	Yes

UV Specifications

UV Output 253.7nm - 100hr (per lamp)	12.0 W
Intensity @ 1m (per lamp)	90 μW/cm ²
UVA	No
UVB	No
UVC	Yes
Ozone emission	No
Lamp Life Expectancy	17,000 hours
Lamp Diameter	T6 (19 mm)
Lamp Geometry	'J' Shape
Lamp Type	Quartz

Filter Options for UV Diffusers

UVFILTER-W-M9 UV-Resistant 20" x 20" x 2" White MERV-9 Pleated Filter

UVFILTER-W-M9	
Minimum Efficiency Rating Value (AHRAE 52.2)	MERV 9 @ 1968 cfm
Initial Resistance @ 492 cfm	0.021 in.w.g
UL Certification	Yes



UVFILTER-C-M7 UV-Resistant 20" x 20" x 2" MERV-7 Carbon Pleated Filter

UVFILTER-C-M7	
Minimum Efficiency Rating Value (AHRAE 52.2)	MERV 7 @ 1968 cfm
Initial Resistance @ 492 cfm	0.08 in.w.g
UL Certification	Yes

AXO-S300-UV Airflow Performance Data



AXO-S300-UV

Free Area (sqf)	CFM Min	CFM Max
0.10	50	160

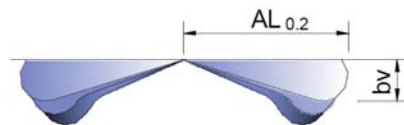
Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700
	Velocity Pressure (H2O)	0.002	0.006	0.010	0.016	0.022	0.031
6	CFM	39	59	79	98	118	137
	Pressure Loss (in.w.g.) - White Filter	0.02	0.04	0.06	0.1	0.14	0.18
	Pressure Loss (in.w.g.) - Carbon Filter	0.02	0.04	0.06	0.1	0.14	0.18
	NC	< 15	< 15	21	26	31	35
	Throw (ft) - Coanda Effect	1-2-3	2-3-5	3-4-7	3-6-8	4-7-10	5-8-11
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-3-5	3-4-6	3-5-8	4-6-9
8	CFM	70	105	140			
	Pressure Loss (in.w.g.) - White Filter	0.02	0.04	0.06	0.1	0.14	0.18
	Pressure Loss (in.w.g.) - Carbon Filter	0.02	0.04	0.06	0.1	0.14	0.18
	NC	17	28	37			
	Throw (ft) - Coanda Effect	2-4-6	4-6-9	5-8-11			
	Throw (ft) - No Ceiling Effect	2-3-4	3-4-7	3-6-9			

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm**, respectively.
- Pressure Loss values represent the total pressure drop of the diffuser, plenum and filter assembled together.

Throw Correction Factors - Temperature - AXO-S300-UV

Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Throw Correction Factors - Airflow Adjustments - AXO-S300-UV

Adjustment	Ka
1-Way	1.4
2-Way	1.2
3-Way	1.1

Throw' = Ka x Throw

Induction Ratio and Delta T Ratio - AXO-S300-UV

Ratios		
Throw (ft)	i	Delta T Ratio
4	10	0.046
6	17	0.028
8	23	0.022
10	29	0.017
15	48	-
20	65	-

induced room air = supplied cfm * i
 induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio
 Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

AXO-S400-UV Airflow Performance Data

Free Area (sqf)	CFM Min	CFM Max
0.22	100	250



AXO-S400-UV

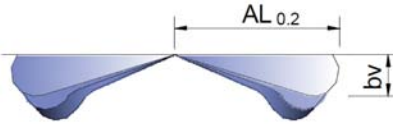
Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041	.062
6	CFM		59	79	98	118	137	157	196
	Pressure Loss (in.w.g.) - White Filter		0.013	0.022	0.032	0.045	0.059	0.077	0.117
	Pressure Loss (in.w.g.) - Carbon Filter		0.019	0.029	0.041	0.055	0.071	0.09	0.133
	NC		< 15	< 15	< 15	< 15	17	21	26
	Throw (ft) - Coanda Effect		1-2-3	2-3-4	2-4-5	3-4-7	3-5-8	4-6-9	4-7-11
	Throw (ft) - No Ceiling Effect		1-2-2	1-2-3	2-3-4	2-3-5	2-4-6	3-4-7	3-5-8
8	CFM	70	105	140	175	209	244	279	349
	Pressure Loss (in.w.g.) - White Filter	0.018	0.036	0.062	0.094	0.132	0.178	0.231	0.358
	Pressure Loss (in.w.g.) - Carbon Filter	0.024	0.045	0.073	0.108	0.149	0.198	0.253	0.384
	NC	< 15	< 15	16	22	25	29	32	> 40
	Throw (ft) - Coanda Effect	2-3-4	2-4-6	3-5-8	4-7-10	5-8-12	5-9-14	6-10-16	8-13-19
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-4-6	3-5-7	3-6-9	4-7-10	5-8-12	6-10-15
10	CFM	109	164	218	273	327			
	Pressure Loss (in.w.g.) - White Filter	0.039	0.083	0.143	0.222	0.315			
	Pressure Loss (in.w.g.) - Carbon Filter	0.048	0.097	0.161	0.243	0.34			
	NC	< 15	22	28	34	> 40			
	Throw (ft) - Coanda Effect	2-4-6	4-6-9	5-8-12	6-10-15	7-12-18			
	Throw (ft) - No Ceiling Effect	2-3-5	3-5-7	4-6-9	5-8-11	5-9-14			

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm**, respectively.
- Pressure Loss values represent the total pressure drop of the diffuser, plenum and filter assembled together.

Throw Correction Factors - Temperature - AXO-S400-UV

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$
 $\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Throw Correction Factors - Airflow Adjustments - AXO-S400-UV

Adjustment	Ka
1-Way	1.4
2-Way	1.2
3-Way	1.1

$\text{Throw}' = Ka \times \text{Throw}$

Induction Ratio and Delta T Ratio - AXO-S400-UV

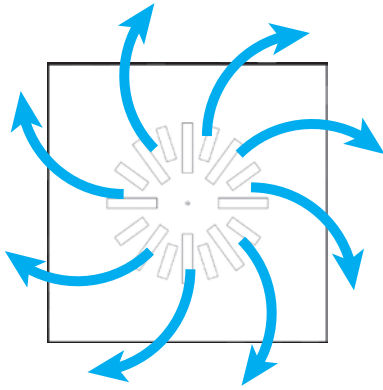
Ratios		
Throw (ft)	i	Delta T Ratio
4	7	0.052
6	13	0.034
8	18	0.026
10	24	0.019
15	39	-
20	55	-
25	72	-
30	90	-

induced room air = supplied cfm * i
 induced room air = cfm mixed for given throw

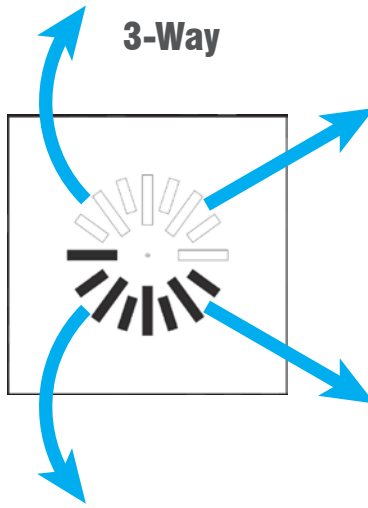
Delta T (Throw) = Delta T (Supply) * Delta T Ratio
 Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

AXO-S400-UV Adjustment and Patterns

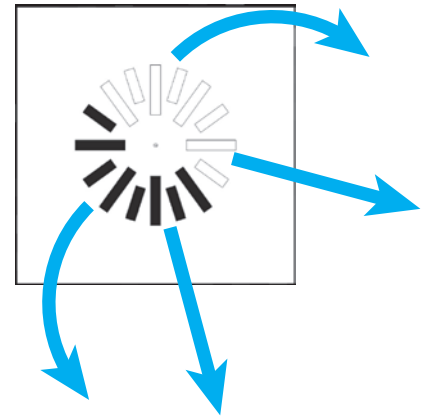
Swirl (standard)



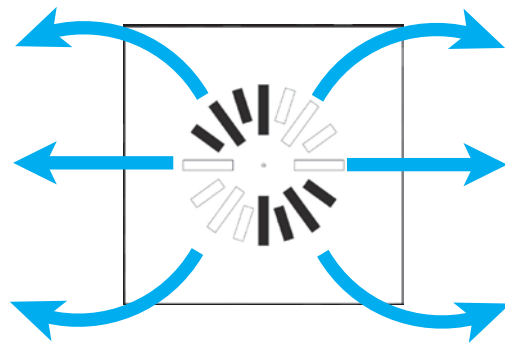
3-Way



2-Way Corner



2-Way Opposed



AXO-S-UV Airflow Performance Data



AXO-S-UV

Free Area (sqf)	CFM Min	CFM Max
0.48	230	500

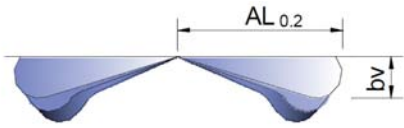
Neck Size (inches)	Neck (fpm) Velocity	300	400	500	600	700	800	1000	1200	1400
	Velocity Pressure (H2O)	0.006	.010	.016	.022	.031	.041	.062	.090	.122
6	CFM			98	118	137	157	196	236	275
	Pressure Loss (in.w.g.) - White Filter			0.01	0.014	0.018	0.023	0.035	0.05	0.067
	Pressure Loss (in.w.g.) - Carbon Filter			0.018	0.024	0.029	0.036	0.051	0.069	0.089
	NC			< 15	< 15	< 15	< 15	15	19	22
	Throw (ft) - Coanda Effect			1-2-4	2-3-4	2-3-5	2-4-6	3-5-7	4-6-9	4-7-10
	Throw (ft) - No Ceiling Effect			1-2-3	1-2-3	2-3-4	2-3-4	2-4-6	3-4-7	3-5-8
8	CFM	105	140	175	209	244	279	349	419	489
	Pressure Loss (in.w.g.) - White Filter	0.011	0.019	0.028	0.04	0.053	0.069	0.107	0.154	0.208
	Pressure Loss (in.w.g.) - Carbon Filter	0.02	0.03	0.043	0.056	0.073	0.091	0.134	0.185	0.244
	NC	< 15	< 15	< 15	16	20	22	27	31	35
	Throw (ft) - Coanda Effect	2-3-4	2-3-5	3-4-7	3-5-8	4-6-9	4-7-10	5-9-13	6-10-16	7-12-18
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-3-5	2-4-6	3-5-7	3-5-8	4-7-10	5-8-12	6-9-14
10	CFM	164	218	273	327	382	436	545	654	
	Pressure Loss (in.w.g.) - White Filter	0.025	0.043	0.066	0.094	0.128	0.166	0.258	0.37	0.503
	Pressure Loss (in.w.g.) - Carbon Filter	0.038	0.06	0.088	0.12	0.157	0.198	0.297	0.415	0.554
	NC	< 15	17	22	26	28	32	37	40	
	Throw (ft) - Coanda Effect	3-4-6	3-5-8	4-7-10	5-8-12	6-10-14	7-11-16	8-14-21	10-16-25	
	Throw (ft) - No Ceiling Effect	2-3-5	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-10-15	7-12-19	
12	CFM	236	314	393	471	550	628			
	Pressure Loss (in.w.g.) - White Filter	0.05	0.087	0.135	0.193	0.263	0.341			
	Pressure Loss (in.w.g.) - Carbon Filter	0.069	0.111	0.165	0.228	0.302	0.385			
	NC	19	25	30	34	37	40			
	Throw (ft) - Coanda Effect	4-6-9	5-8-12	6-10-15	7-12-18	8-14-21	9-15-23			
	Throw (ft) - No Ceiling Effect	3-5-7	4-6-9	4-7-11	5-9-13	6-10-16	7-11-17			

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm**, respectively.
- Pressure Loss values represent the total pressure drop of the diffuser, plenum and filter assembled together.

Throw Correction Factors - Temperature - AXO-S-UV

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	.036	1
-2	.041	.985
-4	.046	.975
-6	.052	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Throw Correction Factors - Airflow Adjustments - AXO-S-UV

Adjustment	Ka
1-Way	1.4
2-Way	1.2
3-Way	1.1

$\text{Throw}' = Ka \times \text{Throw}$

Induction Ratio and Delta T Ratio - AXO-S-UV

Ratios		
Throw (ft)	i	Delta T Ratio
4	7	0.115
6	9	0.068
8	11	0.052
10	16	0.04
15	26	0.027
20	37	0.02
25	47	0.016
30	61	-

induced room air = supplied cfm * i

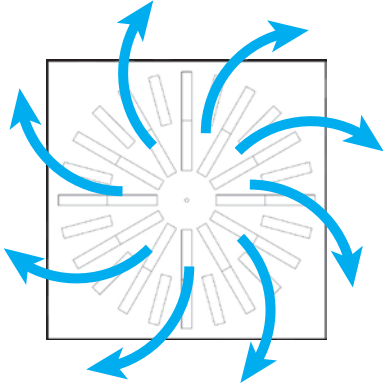
induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

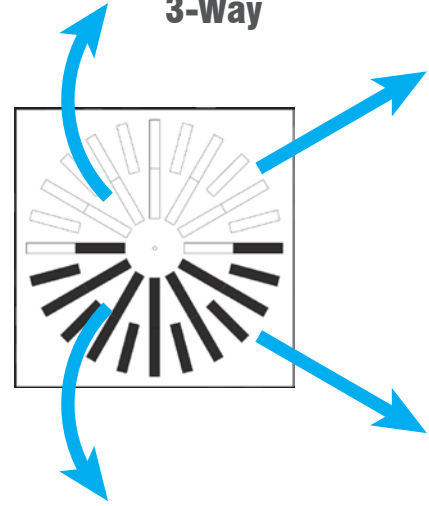
Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

AXO-S-UV Adjustment and Patterns

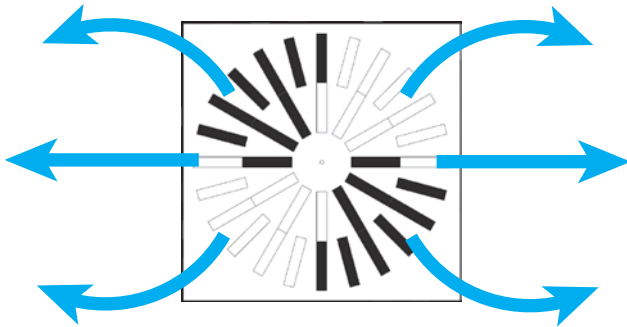
Swirl (standard)



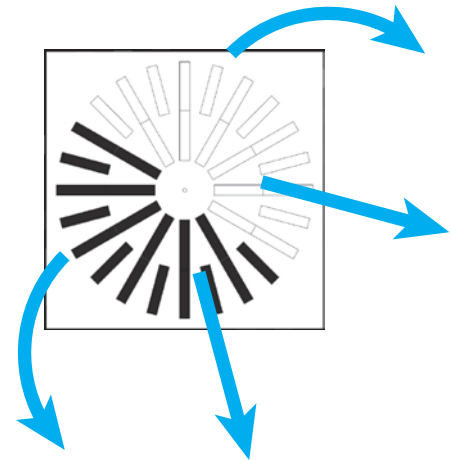
3-Way



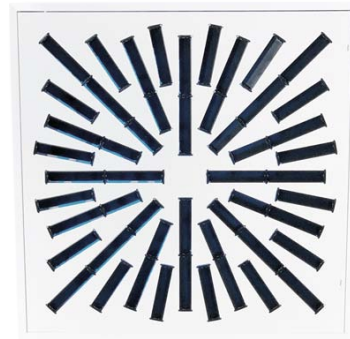
2-Way Opposed



2-Way Corner



AXO-SX-UV Airflow Performance Data



AXO-SX-UV

Free Area (sqf)	CFM Min	CFM Max
0.62	300	550

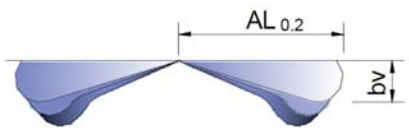
Neck Size (inches)	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400	1600
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	0.09	0.122	0.16
6	CFM			118	137	157	196	236	275	314
	Pressure Loss (in.w.g.) - White Filter			0.012	0.016	0.02	0.031	0.044	0.06	0.078
	Pressure Loss (in.w.g.) - Carbon Filter			0.022	0.027	0.033	0.047	0.063	0.081	0.102
	NC			< 15	< 15	< 15	< 15	< 15	16	20
	Throw (ft) - Coanda Effect			2-3-4	2-3-4	2-3-4	2-4-5	3-4-7	3-5-8	4-6-9
	Throw (ft) - No Ceiling Effect			1-2-3	1-2-3	1-2-3	2-3-4	2-3-5	2-4-6	3-4-7
8	CFM	140	175	209	244	279	349	419	489	559
	Pressure Loss (in.w.g.) - White Filter	0.016	0.025	0.035	0.047	0.062	0.096	0.138	0.187	0.245
	Pressure Loss (in.w.g.) - Carbon Filter	0.028	0.039	0.052	0.067	0.083	0.122	0.169	0.223	0.284
	NC	< 15	< 15	< 15	< 15	17	23	28	32	36
	Throw (ft) - Coanda Effect	2-3-4	2-3-5	2-4-6	3-4-7	3-5-8	4-6-10	5-8-12	5-9-14	6-10-16
	Throw (ft) - No Ceiling Effect	1-2-3	1-2-4	2-3-4	2-3-5	2-4-6	3-5-7	4-6-9	4-7-10	5-8-12
10	CFM	218	273	327	382	436	545	654		
	Pressure Loss (in.w.g.) - White Filter	0.038	0.059	0.084	0.115	0.149	0.232	0.334		
	Pressure Loss (in.w.g.) - Carbon Filter	0.055	0.08	0.109	0.143	0.181	0.271	0.379		
	NC	< 15	16	21	25	29	36	41		
	Throw (ft) - Coanda Effect	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-10-15	7-12-18		
	Throw (ft) - No Ceiling Effect	2-3-5	2-4-6	3-5-7	3-5-8	4-6-9	5-8-11	5-9-14		
12	CFM	314	393	471	550	628				
	Pressure Loss (in.w.g.) - White Filter	0.078	0.121	0.174	0.237	0.308				
	Pressure Loss (in.w.g.) - Carbon Filter	0.102	0.151	0.208	0.276	0.352				
	NC	20	27	31	36	40				
	Throw (ft) - Coanda Effect	4-6-9	4-7-11	5-9-13	6-10-15	7-12-18				
	Throw (ft) - No Ceiling Effect	3-4-4	3-5-8	4-6-10	5-8-12	5-9-13				

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm**, respectively.
- Pressure Loss values represent the total pressure drop of the diffuser, plenum and filter assembled together.

Throw Correction Factors - Temperature - AXO-SX-UV

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	0.36	1
-2	.041	.985
-4	.046	.975
-6	.058	.965
-8	.058	.95
-10	.065	.935
-12	.072	.925
-15	.084	.91



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

Throw Correction Factors - Airflow Adjustments - AXO-SX-UV

Adjustment	Ka
1-Way	1.4
2-Way	1.2
3-Way	1.1

$\text{Throw}' = Ka \times \text{Throw}$

Induction Ratio and Delta T Ratio - AXO-SX-UV

Ratios		
Throw (ft)	i	Delta T Ratio
4	< 5	1.3
6	8	0.08
8	12	0.06
10	16	0.047
15	28	0.03
20	43	0.023
25	56	0.018
30	78	0.015

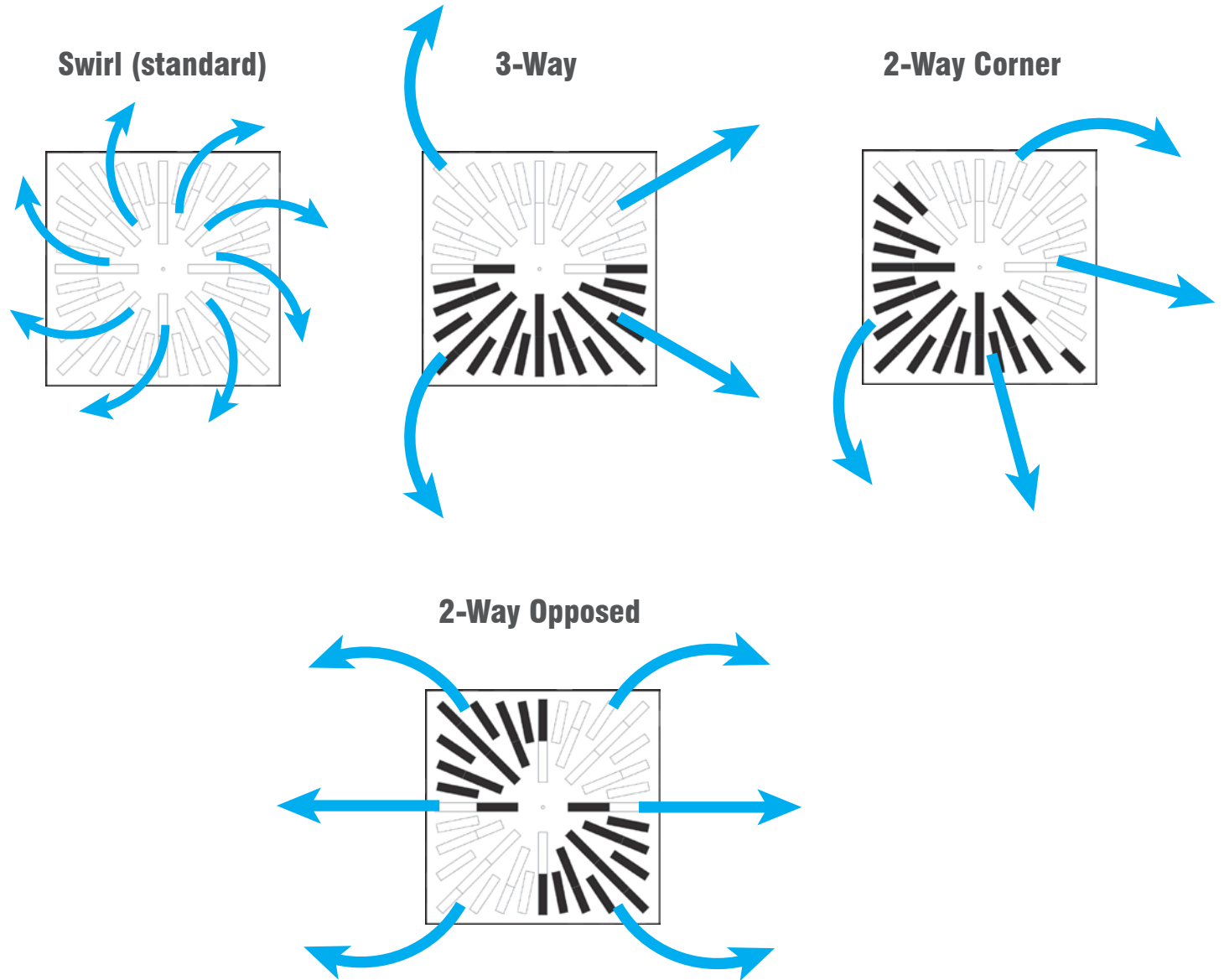
induced room air = supplied cfm * i

induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)

AXO-SX-UV Adjustment and Patterns



Single-Pass Germicidal Irradiation Performance - 100-300 CFM (1/2)

Bio-contaminants	100 cfm	150 cfm	200 cfm	250 cfm	300 cfm
Mycobacterium tuberculosis	>99.9999%	>99.9999%	>99.9999%	>99.9999%	>99.9999%
Legionella pneumophila	>99.9999%	>99.9999%	>99.9999%	>99.9999%	>99.9999%
Candida auris	>99.9999%	>99.9999%	>99.9999%	>99.9999%	>99.9999%
SARS-CoV-1	>99.9999%	>99.9999%	>99.9999%	>99.9999%	99.9999%
Proteus mirabilis	>99.9999%	>99.9999%	>99.9999%	99.9996%	99.9967%
Mycoplasma pneumoniae	>99.9999%	>99.9999%	>99.9999%	99.9994%	99.9952%
Listeria monocytogenes	>99.9999%	>99.9999%	99.9996%	99.9948%	99.9729%
Salmonella	>99.9999%	>99.9999%	99.9993%	99.9922%	99.9623%
Aeromonas	>99.9999%	>99.9999%	99.9981%	99.9832%	99.9285%
SARS-CoV-2	>99.9999%	99.9998%	99.9955%	99.9666%	99.8731%
Rickettsia prowazekii	>99.9999%	99.9996%	99.9919%	99.9465%	99.8122%
Staphylococcus epidermis	>99.9999%	99.9990%	99.9829%	99.9030%	99.6916%
E. Coli	>99.9999%	99.9985%	99.9764%	99.8746%	99.6182%
Yersinia enterocolitica	>99.9999%	99.9982%	99.9729%	99.8599%	99.5811%
Coxiella burnetii	>99.9999%	99.9982%	99.9729%	99.8598%	99.5809%
Lactobacillus reuteri	>99.9999%	99.9982%	99.9729%	99.8598%	99.5809%
Vaccinia virus	>99.9999%	99.9982%	99.9721%	99.8568%	99.5734%
Smallpox	>99.9999%	99.9982%	99.9718%	99.8555%	99.5703%
Newcastle disease	>99.9999%	99.9965%	99.9549%	99.7894%	99.4119%
Acinetobacter baumannii	99.9999%	99.9892%	99.8938%	99.5824%	98.9594%
Influenza A virus	99.9997%	99.9794%	99.8282%	99.3862%	98.5655%
MRSA	99.9994%	99.9684%	99.7632%	99.2064%	98.2232%
Coxsackievirus	99.9993%	99.9636%	99.7364%	99.1355%	98.0918%
Avian Influenza virus	99.9988%	99.9480%	99.6556%	98.9292%	97.7193%
Measle virus	99.9987%	99.9445%	99.6386%	98.8872%	97.6449%
Pseudomonas aeruginosa	99.9986%	99.9429%	99.6307%	98.8680%	97.6110%
Serratia marcescens	99.9962%	99.8860%	99.3796%	98.2854%	96.6235%
Parvovirus H-1	99.9947%	99.8588%	99.2715%	98.0505%	96.2422%
Proteus vulgaris/mirabilis	99.9729%	99.5809%	98.3529%	96.2556%	93.5263%
Corynebacterium diphtheriae	99.9447%	99.3265%	97.6490%	95.0227%	91.7934%
Ustilago zeae	99.9124%	99.0848%	97.0409%	94.0170%	90.4332%
Streptococcus pyogenes	99.8629%	98.7659%	96.2974%	92.8418%	88.8911%
Haemophilus influenza	99.8354%	98.6058%	95.9427%	92.2982%	88.1925%
Yeast	99.7885%	98.3526%	95.4016%	91.4869%	87.1647%
Klebsiella pneumoniae	99.7159%	97.9941%	94.6699%	90.4195%	85.8369%
Neisseria catarrhalis/meningitidis	99.6300%	97.6076%	93.9169%	89.3512%	84.5326%
Clostridium tetani	99.3448%	96.4984%	91.9053%	86.6168%	81.2875%
Vancomycin Resistant Enterococcus	98.8704%	94.9656%	89.3717%	83.3593%	77.5624%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filter has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Single-Pass Germicidal Irradiation Performance - 100-300 CFM (2/2)

Bio-contaminants	100 cfm	150 cfm	200 cfm	250 cfm	300 cfm
Burkholderia cenocepacia	98.5490%	94.0510%	87.9543%	81.6064%	75.6094%
Adenovirus	98.4594%	93.8085%	87.5879%	81.1602%	75.1174%
Enterobacter cloacae	97.8717%	92.3202%	85.4114%	78.5607%	72.2875%
Reovirus	97.2486%	90.8861%	83.4127%	76.2414%	69.8108%
Norwalk virus	96.1334%	88.5655%	80.3364%	72.7773%	66.1850%
Echovirus	90.3990%	79.0326%	69.0145%	60.8324%	54.2098%
Bacillus Anthacis	83.2521%	69.6164%	59.0759%	51.0690%	44.8787%
Cryptococcus neoformans	83.2521%	69.6164%	59.0759%	51.0690%	44.8787%
Blastomyces dermatidis	82.7981%	69.0697%	58.5248%	50.5427%	44.3850%
Histoplasma capsulatum	82.7981%	69.0697%	58.5248%	50.5427%	44.3850%
Mucor spores	82.7981%	69.0697%	58.5248%	50.5427%	44.3850%
Bacillus subtilis spores	80.9576%	66.9010%	56.3624%	48.4903%	42.4683%
Francisella Tularensis	79.3443%	65.0570%	54.5515%	46.7872%	40.8874%
Fusarium oxysporum	78.1157%	63.6848%	53.2193%	45.5431%	39.7379%
Botrytis cinerea	62.6337%	48.1215%	38.8720%	32.5484%	27.9733%
Rhizopus nigricans	60.1987%	45.8916%	36.9117%	30.8234%	26.4416%
Nocardia asteroides	58.5026%	44.3651%	35.5815%	29.6590%	25.4112%
Penicillium digitatum	53.6181%	40.0808%	31.8957%	26.4573%	22.5925%
Bacillus Cereus spores	45.3095%	33.1233%	26.0470%	21.4466%	18.2218%
Algae blue-green	42.1803%	30.5961%	23.9607%	19.6788%	16.6910%
Streptococcus Pneumoniae	40.9296%	29.5988%	23.1427%	18.9883%	16.0946%
Penicillium chrysogenum	37.1475%	26.6250%	20.7205%	16.9520%	14.3408%
Trichophyton rubrum	35.5815%	25.4112%	19.7389%	16.1305%	13.6352%
Candida albicans	35.3052%	25.1981%	19.5669%	15.9868%	13.5119%
Mucor mucedo	34.7491%	24.7700%	19.2220%	15.6986%	13.2648%
Clostridium Difficile spores	33.7359%	23.9932%	18.5972%	15.1775%	12.8181%
Cladosporium herbarum	32.6926%	23.1975%	17.9589%	14.6458%	12.3630%
Scopulariopsis brevicaulis	30.7938%	21.7598%	16.8097%	13.6906%	11.5465%
Bacillus Anthacis spores	28.2297%	19.8390%	15.2827%	12.4255%	10.4673%
Aspergillus fumigatus spores	10.4354%	7.0839%	5.3614%	4.3126%	3.6070%
Aspergillus niger spores	7.2164%	4.8707%	3.6757%	2.9516%	2.4658%
Cladosporium wemecki	5.3108%	3.5726%	2.6916%	2.1591%	1.8026%
stachybotrys chartarum	4.2922%	2.8823%	2.1696%	1.7395%	1.4517%
Myxobolus cerebrealis	2.4310%	1.6273%	1.2230%	0.9796%	0.8170%
Moraxella	2.3265%	1.5571%	1.1701%	0.9372%	0.7816%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filter has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Single-Pass Germicidal Irradiation Performance - 350-500 CFM (1/2)

Bio-contaminants	350 cfm	400 cfm	450 cfm	500 cfm
Mycobacterium tuberculosis	>99.9999%	99.9997%	99.9987%	99.9959%
Legionella pneumophila	99.9999%	99.9993%	99.9975%	99.9929%
Candida auris	99.9999%	99.9994%	99.9976%	99.9930%
SARS-CoV-1	99.9990%	99.9958%	99.9872%	99.9687%
Proteus mirabilis	99.9854%	99.9561%	99.8963%	99.7939%
Mycoplasma pneumoniae	99.9803%	99.9428%	99.8688%	99.7453%
Listeria monocytogenes	99.9124%	99.7889%	99.5814%	99.2762%
Salmonella	99.8836%	99.7293%	99.4778%	99.1168%
Aeromonas	99.7989%	99.5630%	99.2008%	98.7046%
SARS-CoV-2	99.6710%	99.3277%	98.8280%	98.1717%
Rickettsia prowazekii	99.5395%	99.0977%	98.4776%	97.6865%
Staphylococcus epidermis	99.2956%	98.6914%	97.8813%	96.8850%
E. Coli	99.1541%	98.4639%	97.5570%	96.4590%
Yersinia enterocolitica	99.0841%	98.3533%	97.4012%	96.2564%
Coxiella burnetii	99.0838%	98.3529%	97.4006%	96.2556%
Lactobacillus reuteri	99.0838%	98.3529%	97.4006%	96.2556%
Vaccinia virus	99.0697%	98.3307%	97.3695%	96.2153%
Smallpox	99.0640%	98.3217%	97.3570%	96.1991%
Newcastle disease	98.7751%	97.8763%	96.7418%	95.4114%
Acinetobacter baumannii	98.0022%	96.7418%	95.2335%	93.5378%
Influenza A virus	97.3695%	95.8549%	94.0961%	92.1652%
MRSA	96.8399%	95.1333%	93.1908%	91.0918%
Coxsackievirus	96.6407%	94.8658%	92.8591%	90.7023%
Avian Influenza virus	96.0858%	94.1311%	91.9576%	89.6522%
Measle virus	95.9767%	93.9881%	91.7837%	89.4510%
Pseudomonas aeruginosa	95.9272%	93.9234%	91.7051%	89.3603%
Serratia marcescens	94.5212%	92.1232%	89.5534%	86.9058%
Parvovirus H-1	93.9950%	91.4650%	88.7809%	86.0376%
Proteus vulgaris/mirabilis	90.4283%	87.1659%	83.8773%	80.6495%
Corynebacterium diphtheriae	88.2704%	84.6672%	81.1154%	77.6901%
Ustilago zeae	86.6226%	82.7981%	79.0824%	75.5397%
Streptococcus pyogenes	84.7944%	80.7579%	76.8910%	73.2451%
Haemophilus influenza	83.9783%	79.8572%	75.9320%	72.2479%
Yeast	82.7902%	78.5561%	74.5549%	70.8228%
Klebsiella pneumoniae	81.2751%	76.9130%	72.8291%	69.0476%
Neisseria catarrhalis/meningitidis	79.8064%	75.3360%	71.1855%	67.3675%
Clostridium tetani	76.2254%	71.5489%	67.2844%	63.4170%
Vancomycin Resistant Enterococcus	72.2225%	67.3989%	63.0753%	59.2070%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filter has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Single-Pass Germicidal Irradiation Performance - 350-500 CFM (2/2)

Bio-contaminants	350 cfm	400 cfm	450 cfm	500 cfm
Burkholderia cenocepacia	70.1625%	65.2930%	60.9626%	57.1123%
Adenovirus	69.6473%	64.7692%	60.4393%	56.5952%
Enterobacter cloacae	66.7116%	61.8050%	57.4940%	53.6974%
Reovirus	64.1773%	59.2724%	54.9978%	51.2572%
Norwalk virus	60.5198%	55.6563%	51.4630%	47.8246%
Echovirus	48.8043%	44.3354%	40.5915%	37.4160%
Bacillus Anthacis	39.9830%	36.0280%	32.7726%	30.0493%
Cryptococcus neoformans	39.9830%	36.0280%	32.7726%	30.0493%
Blastomyces dermatidis	39.5226%	35.5988%	32.3718%	29.6741%
Histoplasma capsulatum	39.5226%	35.5988%	32.3718%	29.6741%
Mucor spores	39.5226%	35.5988%	32.3718%	29.6741%
Bacillus subtilis spores	37.7404%	33.9412%	30.8267%	28.2297%
Francisella Tularensis	36.2769%	32.5845%	29.5653%	27.0529%
Fusarium oxysporum	35.2162%	31.6036%	28.6551%	26.2051%
Botrytis cinerea	24.5166%	21.8156%	19.6482%	17.8711%
Rhizopus nigricans	23.1427%	20.5719%	18.5130%	16.8275%
Nocardia asteroides	22.2209%	19.7389%	17.7538%	16.1305%
Penicillium digitatum	19.7082%	17.4747%	15.6946%	14.2430%
Bacillus Cereus spores	15.8377%	14.0041%	12.5503%	11.3697%
Algae blue-green	14.4890%	12.7995%	11.4623%	10.3779%
Streptococcus Pneumoniae	13.9646%	12.3317%	11.0403%	9.9935%
Penicillium chrysogenum	12.4255%	10.9609%	9.8049%	8.8694%
Trichophyton rubrum	11.8075%	10.4114%	9.3103%	8.4197%
Candida albicans	11.6996%	10.3155%	9.2240%	8.3413%
Mucor mucedo	11.4834%	10.1234%	9.0512%	8.1842%
Clostridium Difficile spores	11.0929%	9.7765%	8.7392%	7.9008%
Cladosporium herbarum	10.6951%	9.4235%	8.4219%	7.6126%
Scopulariopsis brevicaulis	9.9825%	8.7913%	7.8540%	7.0972%
Bacillus Anthacis spores	9.0419%	7.9580%	7.1060%	6.4187%
Aspergillus fumigatus spores	3.0998%	2.7176%	2.4194%	2.1801%
Aspergillus niger spores	2.1173%	1.8551%	1.6507%	1.4868%
Cladosporium wemecki	1.5471%	1.3550%	1.2053%	1.0855%
stachybotrys chartarum	1.2456%	1.0908%	0.9702%	0.8736%
Myxobolus cerebralis	0.7007%	0.6134%	0.5454%	0.4910%
Moraxella	0.6703%	0.5868%	0.5217%	0.4697%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filter has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Maintenance Schedule

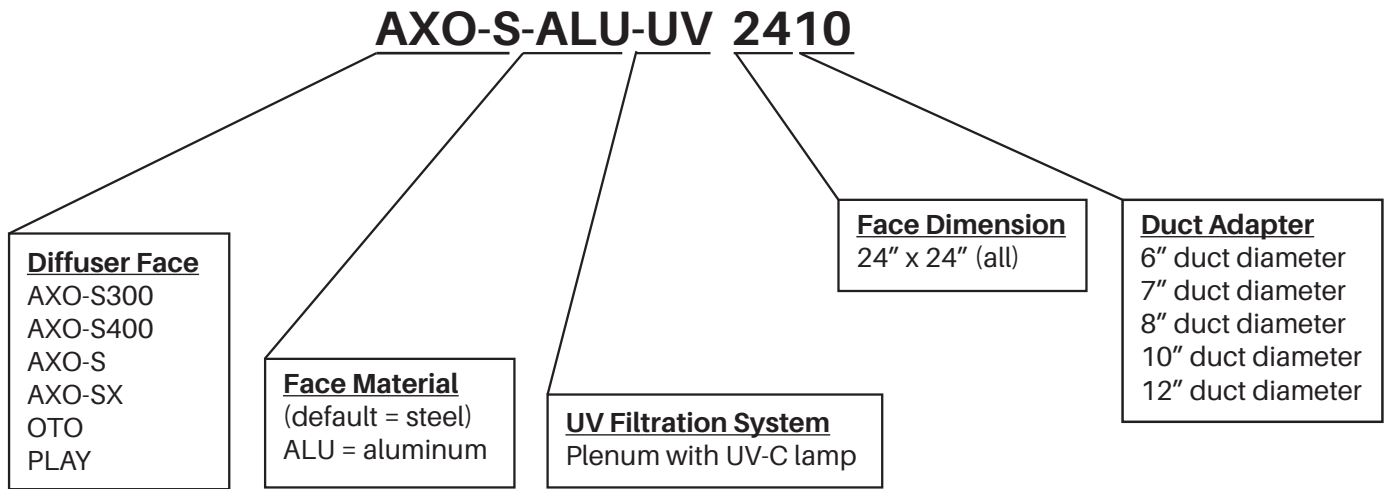
Filter Replacement: every 3 to 6 months depending on the ventilation system’s filtration quality and cleanliness of the duct line.

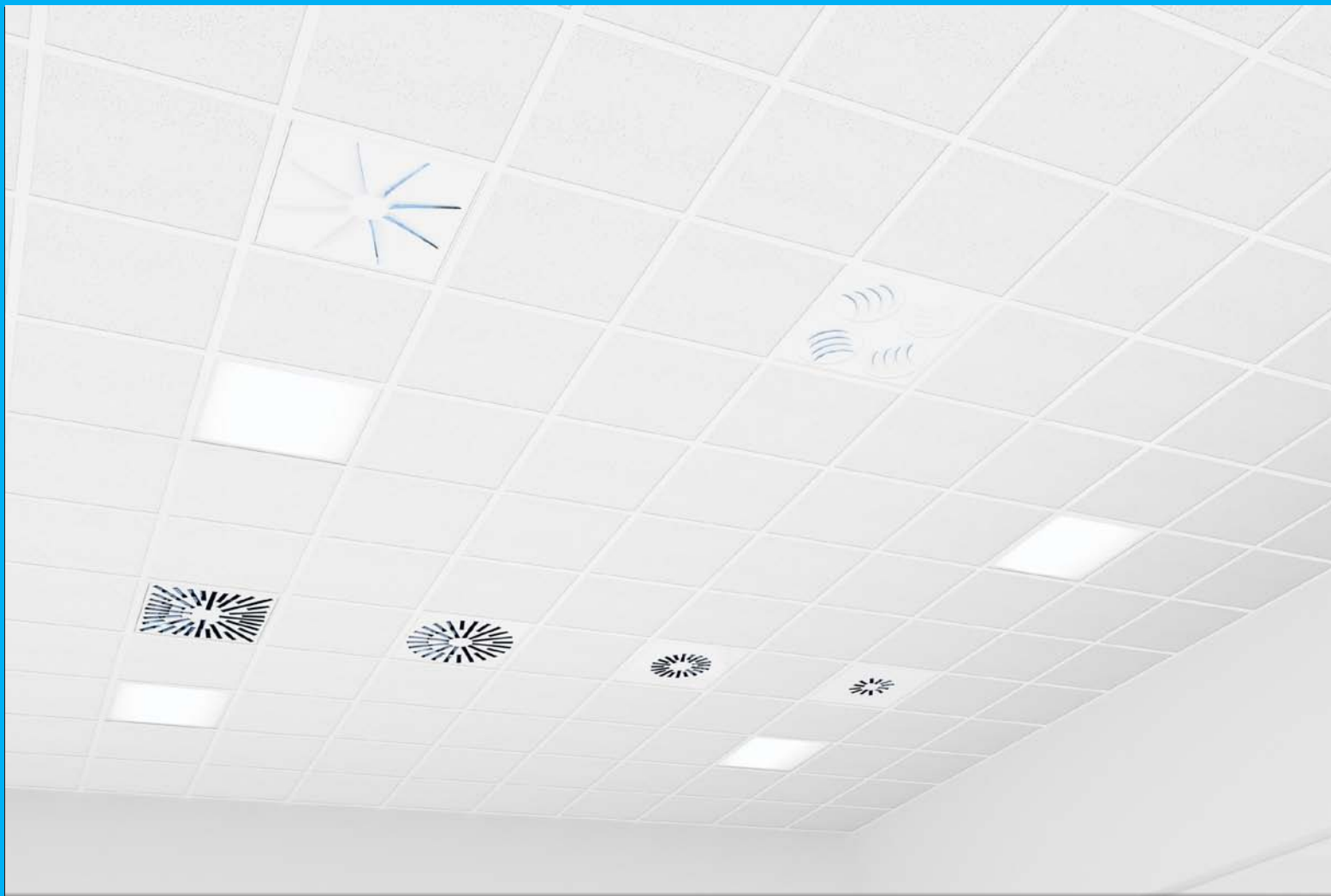
UV Lamp Replacement: every 2 years or 17,000 hours.

How to Specify AXO-UV

Supply and mounting of AXO-UV series high induction swirl UV Diffusers. With individually adjustable black ABS diffusion vanes featuring airflow straighteners on the back of the vanes. Available in four models for optimal supply of air volumes ranging between 50 cfm and 550 cfm. Dimension 24x24 inches. Hinged and removable face constructed from galvanized steel or aluminum face panel powder coated in white M9016. Plenum constructed of aluminum with integrated zero ozone emission UV-C lamp made of quartz, UV Barrier for the safety of room occupants, and two safety interlock switches powering off the system in the absence of the UV Barrier or when the face is open. Shall be supplied and installed with matching aluminum conical duct adapter for UV diffusers. Plenum must have earthquake tabs to secure the product to the building structure. Must be UL certified for the safety of its electrical system and UV emissions. SARS-CoV-2 single-pass germicidal irradiation performance greater than 99.9% at 458 cfm must have been demonstrated by triple redundancy tests with two control points conducted by a 3rd party laboratory with the real virus. By EffectiV HVAC Inc.

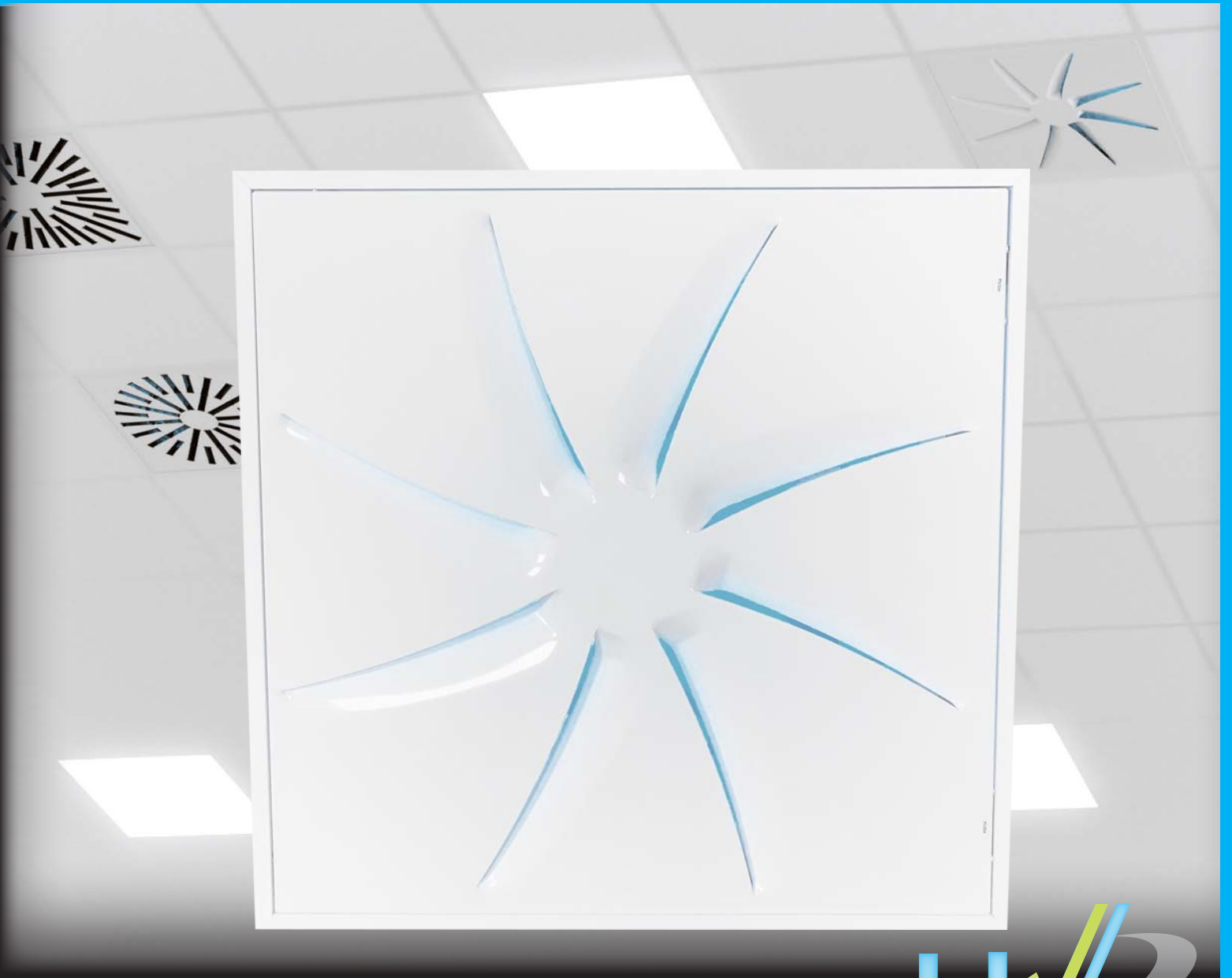
How to Order UV Diffusers





UV DIFFUSERS

UVdiffusers.com



PATENT PENDING












OTO-UUV
Architectural Swirl UV Diffuser

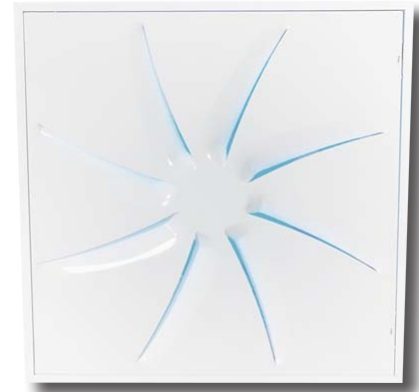


Aug 24 2022

OTO-UV SERIES

Architectural Swirl UV Diffusers

-  UV Diffusers help contain the spread of viruses and bacteria through ventilation systems
-  3-in-1 solution combining UV-C irradiation, air filtration and improved air mixing and room ventilation
-  Single-pass deactivation of airborne viruses and bacteria
-  Tested with the real SARS-CoV-2 virus in a 3rd party laboratory, achieving a 99.949% single-pass virus deactivation at 458 cfm
-  Hinged face provide easy access for filter change and maintenance
-  Fixed and reliable high induction swirl pattern, optimal between 210 cfm and 340 cfm
-  Suitable for new buildings and existing buildings
-  High velocity swirl jets provide efficient mixing of supplied air with room air
-  Architecturally appealing curves and design
-  Lay-in, duct mounted or drywall mounted, suitable for all ceilings
-  Built-in earthquake tabs



OTO-UV

PATENT PENDING



UV Diffusers by EffectiV treat the recycled air in commercial and institutional to help prevent the spread of airborne viruses and bacteria through the ventilation system. They are a 3-in-1 solution cleaning recycled air from pathogens using UV-C light, filtering the air from larger particles with a MERV-9 filter, and improving air mixing and room ventilation. By treating the air at the end of the duct line and by optimizing both the UV light intensity and microbes' exposure time inside the irradiation chamber, UV Diffusers achieve very high single-pass microbial deactivation rates.







They are a practical solution which can be installed in most existing buildings without other significant upgrades, and offer easy access for maintenance and filter replacement. They are also an energy efficient solution to treat the air.

OTO-UV architectural swirl diffusers are designed to be used in air conditioning, ventilation and heating systems at a temperature differential up to 22°F (12°C) and a maximum temperature of 110°F (43°C). They can be mounted in false ceilings, on drywall, or suspended from the ceiling, from 8.5 feet to 13 feet (2.6 up to 4 meters) high. OTO diffusers allow a flow variation of 60% while keeping the air stream stable.

The particular design of OTO diffusers creates a uniform airflow along the length of each aperture. The radial configuration of the eight curved slots produces a rotational jet pattern. The resulting swirl diffusion with high discharge velocity results in a very efficient mixing of supplied air with room air, a high induction ratio and reduced air stratification.

As a result of the collaboration of MADEL with Lievore, Altherr & Molina, OTO's original design combines smooth curves and high performance. EffectiV HVAC took it to the next level by integrating this unique diffuser face in a UV Diffuser.

Applications

-  Schools
-  Healthcare, Hospitals, Dental Clinics
-  Nursing Homes
-  Office Buildings
-  Hospitality, Restaurants
-  Retail, Shopping Malls

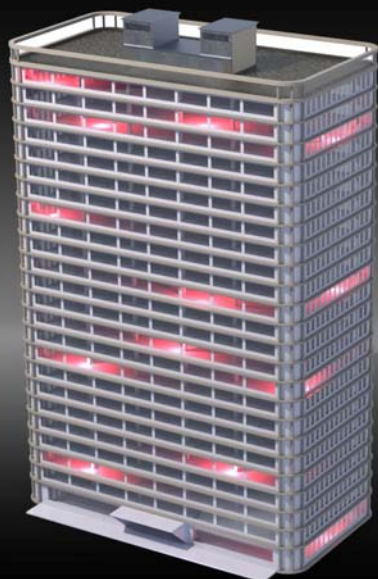


PREVENTING THE SPREAD OF VIRUSES AND BACTERIA THROUGH VENTILATION SYSTEMS IN COMMERCIAL BUILDINGS

Some airborne virus particles are too small to be entirely caught by standard filters. Also, the greater the filter efficiency is, the more pressure is added to the HVAC system. Most ventilation systems in commercial and institutional buildings recycle and recirculate a large percentage of the air without proper treatment and filtration. This is done in order to save energy, but quite problematic when dealing with airborne diseases. Microbes can easily spread between rooms via the ventilation system.

UV Diffusers are a high efficiency single-pass solution to treat recycled air. Diffusers are the last thing that the air passes through before entering the room, making any possible re-contamination of the air impossible. Once UV Diffusers are installed in a space, they act as a shield against pathogens and contaminants, protecting that room from the rest of the building.

UV Diffusers can replace existing diffusers in the whole building, or be installed in a single space. Easy access to ceiling diffusers gives building owners and occupants a lot of flexibility in implementing this solution.



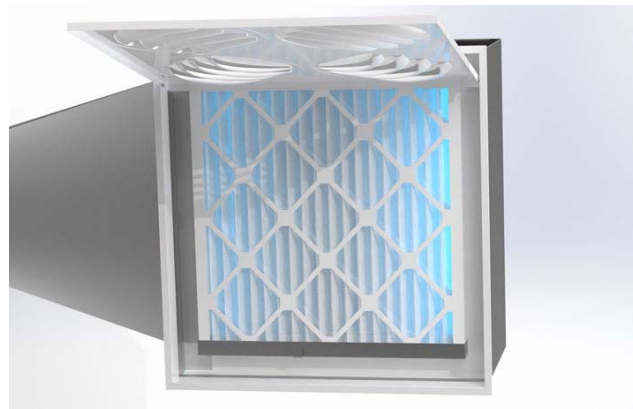
The use of this device is a supplement to and not a substitute for standard infection control practices; users must continue to follow all current infection control practices, including those related to the cleaning and disinfection of environmental surfaces.

How UV Diffusers Work

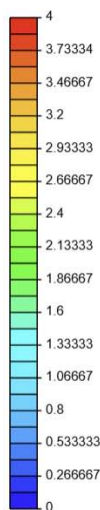
1. Air Filtration

UV Diffusers integrate a UV-resistant MERV-9 or MERV-7 filter to catch larger particles including dust, spores and mites, removing allergens and other irritants, and improving air quality.

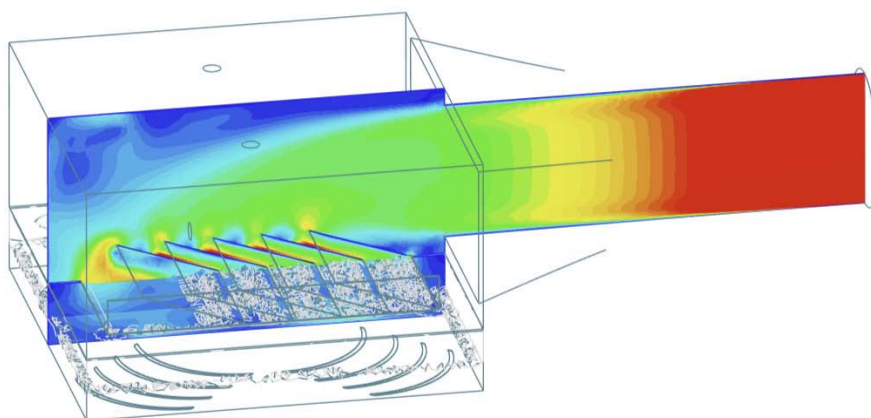
The filter also helps to pressurize the air inside the plenum and slow it down significantly.



All Velocity (m/s)

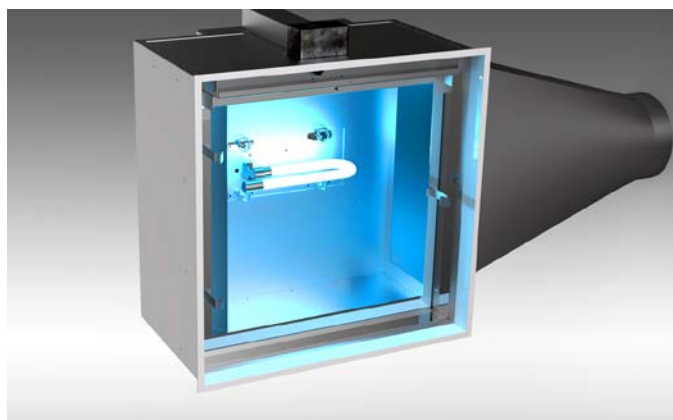


350 cfm

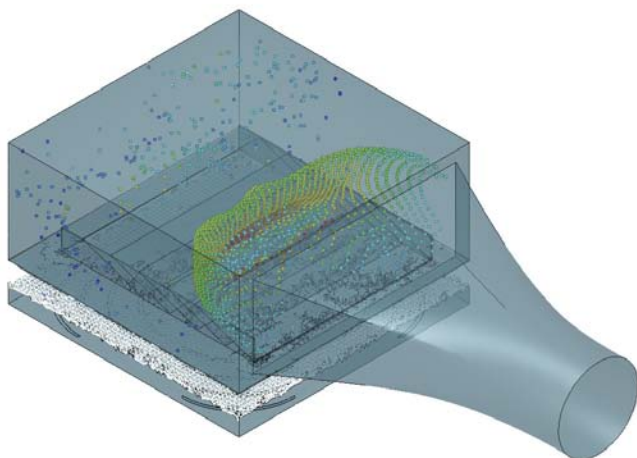
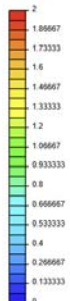


2. UV-C Germicidal Irradiation

UV Diffusers also integrate a UV-C lamp to irradiate viruses and bacteria. The air velocity being significantly lower in the diffuser than it is in the duct, pathogens exposure to UV-C light and therefore disinfection efficiency are multiplied by a factor of 2 to 8 times.



All Velocity (m/s)



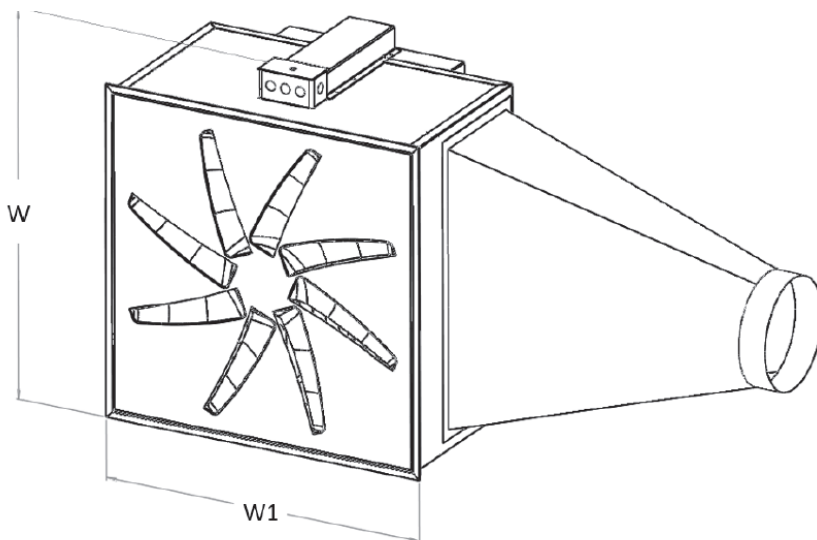
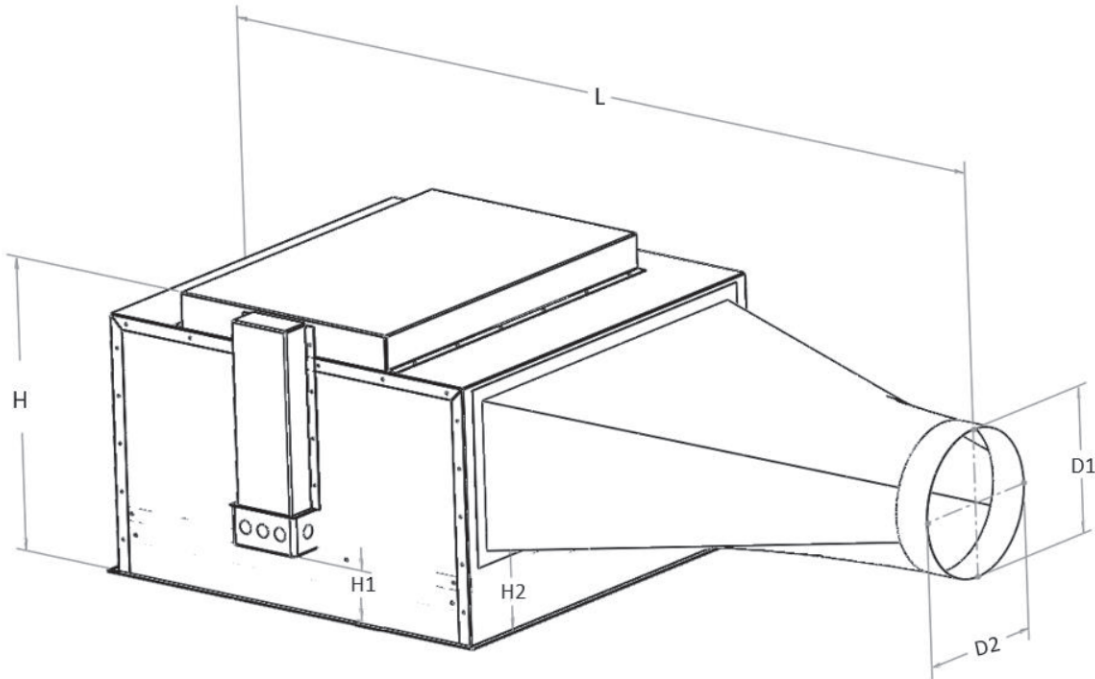
The placement of the UV lamp, the airflow trajectory, the shape and dimension of the plenum and collar for light reflection and the materials - everything has been thought out in order to improve air disinfection efficiency.

3. Improved Ventilation

OTO-UV high induction swirl diffusers feature a high discharge velocity and provide better mixing of the new air with room air when compared to common diffusers. The result is a faster removal of contaminants. Another benefit is a significant improvement of occupants' thermal comfort. Better air mixing can also help optimizing the performance of the HVAC system and reduce energy consumption.



Dimensions



Dimensions	
W	25 2/3"
W1	23 7/8"
H	15 7/8"
H1	3 9/16"
H2	4 3/4"
L	47 1/2"

Duct Diameter	D1	D2
6"	5 7/8"	5 7/8"
7"	6 7/8"	6 7/8"
8"	7 7/8"	7 7/8"
10"	11"	8"
12"	16"	8"

Safety

UV Diffusers certified UL in USA and Canada for safety in regards to electrical and UV irradiation hazards. UV-C light is contained within the diffuser in order to ensure room occupants' safety.

Interlock switches are also in place to ensure maintenance personnel's safety.

High quality lamps made of quartz do not emit any ozone nor other harmful particles. UV Diffusers are certified Zero Ozone Emission by UL

UV Diffusers are also certified by the California Air Resources Board



Mechanical Specifications

Maximum Product Weight	34 lbs
Hinged Face	Yes
Removable Face	Yes
Filter Replacement Through Face	Yes
UV Lamp Replacement Through Face	Yes

Electrical Specifications

Diffuser Voltage	120 V / 240 V
UV Diffuser Wattage	40 W
Safety Switch - Opened Face	Yes
Safety Switch - No UVC Barrier	Yes

UV Specifications

UV Output 253.7nm - 100hr (per lamp)	12.0 W
Intensity @ 1m (per lamp)	90 µW/cm ²
UVA	No
UVB	No
UVC	Yes
Ozone emission	No
Lamp Life Expectancy	17,000 hours
Lamp Diameter	T6 (19 mm)
Lamp Geometry	'J' Shape
Lamp Type	Quartz

Filter Options for UV Diffusers

UVFILTER-W-M9 UV-Resistant 20" x 20" x 2" White MERV-9 Pleated Filter

UVFILTER-W-M9	
Minimum Efficiency Rating Value (AHRAE 52.2)	MERV 9 @ 1968 cfm
Initial Resistance @ 492 cfm	0.021 in.w.g
UL Certification	Yes

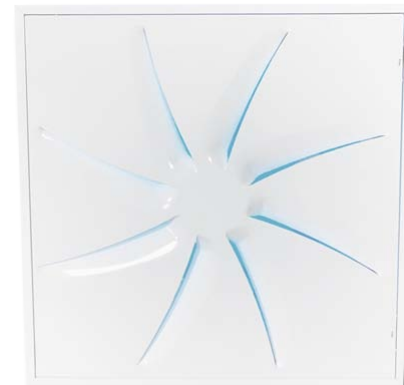


UVFILTER-C-M7 UV-Resistant 20" x 20" x 2" MERV-7 Carbon Pleated Filter

UVFILTER-C-M7	
Minimum Efficiency Rating Value (AHRAE 52.2)	MERV 7 @ 1968 cfm
Initial Resistance @ 492 cfm	0.08 in.w.g
UL Certification	Yes

Airflow Performance Data

Dim	Free Area (sqf)	Min cfm	Max cfm
24"x 24" (605mm)	0.0427	210	341



OTO-UV

OTO-UV Performance Data

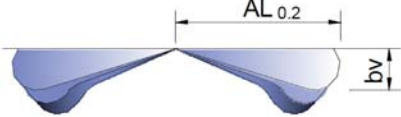
Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041	.062
6	CFM			79	98	118	137	157	196
	Pressure Loss (in.w.g.) - White Filter			0.014	0.020	0.027	0.036	0.046	0.068
	Pressure Loss (in.w.g.) - Carbon Filter			0.021	0.028	0.037	0.047	0.059	0.084
	NC			< 15	< 15	< 15	< 15	< 15	20
	Throw (ft) - Coanda Effect			2-3-3	2-3-4	2-3-5	2-4-6	3-4-6	3-5-8
	Throw (ft) - No Ceiling Effect			1-2-3	1-2-3	1-2-7	2-3-4	2-3-5	2-4-6
8	CFM		105	140	175	209	244	279	349
	Pressure Loss (in.w.g.) - White Filter		0.022	0.037	0.055	0.077	0.102	0.131	0.201
	Pressure Loss (in.w.g.) - Carbon Filter		0.031	0.049	0.070	0.094	0.122	0.153	0.227
	NC		< 15	< 15	17	22	26	30	36
	Throw (ft) - Coanda Effect		2-3-4	2-4-6	3-5-7	3-6-8	4-6-10	4-7-11	6-9-14
	Throw (ft) - No Ceiling Effect		1-2-3	2-3-4	2-4-5	3-4-6	3-5-7	3-6-8	4-7-10
10	CFM	109	164	218	273	327	382	436	545
	Pressure Loss (in.w.g.) - White Filter	0.024	0.049	0.083	0.126	0.177	0.238	0.307	0.472
	Pressure Loss (in.w.g.) - Carbon Filter	0.033	0.063	0.100	0.148	0.202	0.267	0.339	0.511
	NC	< 15	16	23	29	34	38	41	47
	Throw (ft) - Coanda Effect	2-3-4	3-4-7	4-6-9	4-7-11	5-9-13	6-10-15	7-12-17	9-14-22
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-5	3-4-7	3-5-8	4-7-10	5-8-11	5-9-13	6-11-16

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm**, respectively.
- Pressure Loss values represent the total pressure drop of the diffuser, plenum and filter assembled together.

OTO-UV Delta T Correction Factors

Delta T Correction Factors		
Δ T (F)	Kh	KI
0	0.04	1
-2	0.045	0.945
-4	0.05	0.91
-6	0.055	0.87
-8	0.06	0.84
-10	0.068	0.82
-12	0.076	0.805
-15	0.089	0.78



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion
 KI = Throw Correction Factor
 AL_{0.2} = Distance at which velocity reaches 40 fpm

OTO-UV Induction Ratio and Delta T Ratio

Ratios		
Throw (ft)	i	Delta T Ratio
4	7	0.12
6	12	0.057
8	14	0.04
10	18	0.029
15	28	0.017
20	38	-
25	47	-
30	58	-

induced room air = supplied cfm * i

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

Delta T (Supply) = T (Room) - T (Supply)
 Delta T (Throw) = T (Room) - T (Throw)



Single-Pass Germicidal Irradiation Performance - 100-300 CFM (1/2)

Bio-contaminants	100 cfm	150 cfm	200 cfm	250 cfm	300 cfm
Mycobacterium tuberculosis	>99.9999%	>99.9999%	>99.9999%	>99.9999%	>99.9999%
Legionella pneumophila	>99.9999%	>99.9999%	>99.9999%	>99.9999%	>99.9999%
Candida auris	>99.9999%	>99.9999%	>99.9999%	>99.9999%	>99.9999%
SARS-CoV-1	>99.9999%	>99.9999%	>99.9999%	>99.9999%	99.9999%
Proteus mirabilis	>99.9999%	>99.9999%	>99.9999%	99.9996%	99.9967%
Mycoplasma pneumoniae	>99.9999%	>99.9999%	>99.9999%	99.9994%	99.9952%
Listeria monocytogenes	>99.9999%	>99.9999%	99.9996%	99.9948%	99.9729%
Salmonella	>99.9999%	>99.9999%	99.9993%	99.9922%	99.9623%
Aeromonas	>99.9999%	>99.9999%	99.9981%	99.9832%	99.9285%
SARS-CoV-2	>99.9999%	99.9998%	99.9955%	99.9666%	99.8731%
Rickettsia prowazekii	>99.9999%	99.9996%	99.9919%	99.9465%	99.8122%
Staphylococcus epidermis	>99.9999%	99.9990%	99.9829%	99.9030%	99.6916%
E. Coli	>99.9999%	99.9985%	99.9764%	99.8746%	99.6182%
Yersinia enterocolitica	>99.9999%	99.9982%	99.9729%	99.8599%	99.5811%
Coxiella burnetii	>99.9999%	99.9982%	99.9729%	99.8598%	99.5809%
Lactobacillus reuteri	>99.9999%	99.9982%	99.9729%	99.8598%	99.5809%
Vaccinia virus	>99.9999%	99.9982%	99.9721%	99.8568%	99.5734%
Smallpox	>99.9999%	99.9982%	99.9718%	99.8555%	99.5703%
Newcastle disease	>99.9999%	99.9965%	99.9549%	99.7894%	99.4119%
Acinetobacter baumannii	99.9999%	99.9892%	99.8938%	99.5824%	98.9594%
Influenza A virus	99.9997%	99.9794%	99.8282%	99.3862%	98.5655%
MRSA	99.9994%	99.9684%	99.7632%	99.2064%	98.2232%
Coxsackievirus	99.9993%	99.9636%	99.7364%	99.1355%	98.0918%
Avian Influenza virus	99.9988%	99.9480%	99.6556%	98.9292%	97.7193%
Measle virus	99.9987%	99.9445%	99.6386%	98.8872%	97.6449%
Pseudomonas aeruginosa	99.9986%	99.9429%	99.6307%	98.8680%	97.6110%
Serratia marcescens	99.9962%	99.8860%	99.3796%	98.2854%	96.6235%
Parvovirus H-1	99.9947%	99.8588%	99.2715%	98.0505%	96.2422%
Proteus vulgaris/mirabilis	99.9729%	99.5809%	98.3529%	96.2556%	93.5263%
Corynebacterium diphtheriae	99.9447%	99.3265%	97.6490%	95.0227%	91.7934%
Ustilago zeae	99.9124%	99.0848%	97.0409%	94.0170%	90.4332%
Streptococcus pyogenes	99.8629%	98.7659%	96.2974%	92.8418%	88.8911%
Haemophilus influenza	99.8354%	98.6058%	95.9427%	92.2982%	88.1925%
Yeast	99.7885%	98.3526%	95.4016%	91.4869%	87.1647%
Klebsiella pneumoniae	99.7159%	97.9941%	94.6699%	90.4195%	85.8369%
Neisseria catarrhalis/meningitidis	99.6300%	97.6076%	93.9169%	89.3512%	84.5326%
Clostridium tetani	99.3448%	96.4984%	91.9053%	86.6168%	81.2875%
Vancomycin Resistant Enterococcus	98.8704%	94.9656%	89.3717%	83.3593%	77.5624%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filter has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Single-Pass Germicidal Irradiation Performance - 100-300 CFM (2/2)

Bio-contaminants	100 cfm	150 cfm	200 cfm	250 cfm	300 cfm
Burkholderia cenocepacia	98.5490%	94.0510%	87.9543%	81.6064%	75.6094%
Adenovirus	98.4594%	93.8085%	87.5879%	81.1602%	75.1174%
Enterobacter cloacae	97.8717%	92.3202%	85.4114%	78.5607%	72.2875%
Reovirus	97.2486%	90.8861%	83.4127%	76.2414%	69.8108%
Norwalk virus	96.1334%	88.5655%	80.3364%	72.7773%	66.1850%
Echovirus	90.3990%	79.0326%	69.0145%	60.8324%	54.2098%
Bacillus Anthacis	83.2521%	69.6164%	59.0759%	51.0690%	44.8787%
Cryptococcus neoformans	83.2521%	69.6164%	59.0759%	51.0690%	44.8787%
Blastomyces dermatidis	82.7981%	69.0697%	58.5248%	50.5427%	44.3850%
Histoplasma capsulatum	82.7981%	69.0697%	58.5248%	50.5427%	44.3850%
Mucor spores	82.7981%	69.0697%	58.5248%	50.5427%	44.3850%
Bacillus subtilis spores	80.9576%	66.9010%	56.3624%	48.4903%	42.4683%
Francisella Tularensis	79.3443%	65.0570%	54.5515%	46.7872%	40.8874%
Fusarium oxysporum	78.1157%	63.6848%	53.2193%	45.5431%	39.7379%
Botrytis cinerea	62.6337%	48.1215%	38.8720%	32.5484%	27.9733%
Rhizopus nigricans	60.1987%	45.8916%	36.9117%	30.8234%	26.4416%
Nocardia asteroides	58.5026%	44.3651%	35.5815%	29.6590%	25.4112%
Penicillium digitatum	53.6181%	40.0808%	31.8957%	26.4573%	22.5925%
Bacillus Cereus spores	45.3095%	33.1233%	26.0470%	21.4466%	18.2218%
Algae blue-green	42.1803%	30.5961%	23.9607%	19.6788%	16.6910%
Streptococcus Pneumoniae	40.9296%	29.5988%	23.1427%	18.9883%	16.0946%
Penicillium chrysogenum	37.1475%	26.6250%	20.7205%	16.9520%	14.3408%
Trichophyton rubrum	35.5815%	25.4112%	19.7389%	16.1305%	13.6352%
Candida albicans	35.3052%	25.1981%	19.5669%	15.9868%	13.5119%
Mucor mucedo	34.7491%	24.7700%	19.2220%	15.6986%	13.2648%
Clostridium Difficile spores	33.7359%	23.9932%	18.5972%	15.1775%	12.8181%
Cladosporium herbarum	32.6926%	23.1975%	17.9589%	14.6458%	12.3630%
Scopulariopsis brevicaulis	30.7938%	21.7598%	16.8097%	13.6906%	11.5465%
Bacillus Anthacis spores	28.2297%	19.8390%	15.2827%	12.4255%	10.4673%
Aspergillus fumigatus spores	10.4354%	7.0839%	5.3614%	4.3126%	3.6070%
Aspergillus niger spores	7.2164%	4.8707%	3.6757%	2.9516%	2.4658%
Cladosporium wemecki	5.3108%	3.5726%	2.6916%	2.1591%	1.8026%
stachybotrys chartarum	4.2922%	2.8823%	2.1696%	1.7395%	1.4517%
Myxobolus cerebralis	2.4310%	1.6273%	1.2230%	0.9796%	0.8170%
Moraxella	2.3265%	1.5571%	1.1701%	0.9372%	0.7816%

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Single-Pass Germicidal Irradiation Performance - 350-500 CFM (1/2)

Bio-contaminants	350 cfm	400 cfm	450 cfm	500 cfm
Mycobacterium tuberculosis	>99.9999%	99.9997%	99.9987%	99.9959%
Legionella pneumophila	99.9999%	99.9993%	99.9975%	99.9929%
Candida auris	99.9999%	99.9994%	99.9976%	99.9930%
SARS-CoV-1	99.9990%	99.9958%	99.9872%	99.9687%
Proteus mirabilis	99.9854%	99.9561%	99.8963%	99.7939%
Mycoplasma pneumoniae	99.9803%	99.9428%	99.8688%	99.7453%
Listeria monocytogenes	99.9124%	99.7889%	99.5814%	99.2762%
Salmonella	99.8836%	99.7293%	99.4778%	99.1168%
Aeromonas	99.7989%	99.5630%	99.2008%	98.7046%
SARS-CoV-2	99.6710%	99.3277%	98.8280%	98.1717%
Rickettsia prowazekii	99.5395%	99.0977%	98.4776%	97.6865%
Staphylococcus epidermis	99.2956%	98.6914%	97.8813%	96.8850%
E. Coli	99.1541%	98.4639%	97.5570%	96.4590%
Yersinia enterocolitica	99.0841%	98.3533%	97.4012%	96.2564%
Coxiella burnetii	99.0838%	98.3529%	97.4006%	96.2556%
Lactobacillus reuteri	99.0838%	98.3529%	97.4006%	96.2556%
Vaccinia virus	99.0697%	98.3307%	97.3695%	96.2153%
Smallpox	99.0640%	98.3217%	97.3570%	96.1991%
Newcastle disease	98.7751%	97.8763%	96.7418%	95.4114%
Acinetobacter baumannii	98.0022%	96.7418%	95.2335%	93.5378%
Influenza A virus	97.3695%	95.8549%	94.0961%	92.1652%
MRSA	96.8399%	95.1333%	93.1908%	91.0918%
Coxsackievirus	96.6407%	94.8658%	92.8591%	90.7023%
Avian Influenza virus	96.0858%	94.1311%	91.9576%	89.6522%
Measle virus	95.9767%	93.9881%	91.7837%	89.4510%
Pseudomonas aeruginosa	95.9272%	93.9234%	91.7051%	89.3603%
Serratia marcescens	94.5212%	92.1232%	89.5534%	86.9058%
Parvovirus H-1	93.9950%	91.4650%	88.7809%	86.0376%
Proteus vulgaris/mirabilis	90.4283%	87.1659%	83.8773%	80.6495%
Corynebacterium diphtheriae	88.2704%	84.6672%	81.1154%	77.6901%
Ustilago zeae	86.6226%	82.7981%	79.0824%	75.5397%
Streptococcus pyogenes	84.7944%	80.7579%	76.8910%	73.2451%
Haemophilus influenza	83.9783%	79.8572%	75.9320%	72.2479%
Yeast	82.7902%	78.5561%	74.5549%	70.8228%
Klebsiella pneumoniae	81.2751%	76.9130%	72.8291%	69.0476%
Neisseria catarrhalis/meningitidis	79.8064%	75.3360%	71.1855%	67.3675%
Clostridium tetani	76.2254%	71.5489%	67.2844%	63.4170%
Vancomycin Resistant Enterococcus	72.2225%	67.3989%	63.0753%	59.2070%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filter has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Single-Pass Germicidal Irradiation Performance - 350-500 CFM (2/2)

Bio-contaminants	350 cfm	400 cfm	450 cfm	500 cfm
Burkholderia cenocepacia	70.1625%	65.2930%	60.9626%	57.1123%
Adenovirus	69.6473%	64.7692%	60.4393%	56.5952%
Enterobacter cloacae	66.7116%	61.8050%	57.4940%	53.6974%
Reovirus	64.1773%	59.2724%	54.9978%	51.2572%
Norwalk virus	60.5198%	55.6563%	51.4630%	47.8246%
Echovirus	48.8043%	44.3354%	40.5915%	37.4160%
Bacillus Anthacis	39.9830%	36.0280%	32.7726%	30.0493%
Cryptococcus neoformans	39.9830%	36.0280%	32.7726%	30.0493%
Blastomyces dermatidis	39.5226%	35.5988%	32.3718%	29.6741%
Histoplasma capsulatum	39.5226%	35.5988%	32.3718%	29.6741%
Mucor spores	39.5226%	35.5988%	32.3718%	29.6741%
Bacillus subtilis spores	37.7404%	33.9412%	30.8267%	28.2297%
Francisella Tularensis	36.2769%	32.5845%	29.5653%	27.0529%
Fusarium oxysporum	35.2162%	31.6036%	28.6551%	26.2051%
Botrytis cinerea	24.5166%	21.8156%	19.6482%	17.8711%
Rhizopus nigricans	23.1427%	20.5719%	18.5130%	16.8275%
Nocardia asteroides	22.2209%	19.7389%	17.7538%	16.1305%
Penicillium digitatum	19.7082%	17.4747%	15.6946%	14.2430%
Bacillus Cereus spores	15.8377%	14.0041%	12.5503%	11.3697%
Algae blue-green	14.4890%	12.7995%	11.4623%	10.3779%
Streptococcus Pneumoniae	13.9646%	12.3317%	11.0403%	9.9935%
Penicillium chrysogenum	12.4255%	10.9609%	9.8049%	8.8694%
Trichophyton rubrum	11.8075%	10.4114%	9.3103%	8.4197%
Candida albicans	11.6996%	10.3155%	9.2240%	8.3413%
Mucor mucedo	11.4834%	10.1234%	9.0512%	8.1842%
Clostridium Difficile spores	11.0929%	9.7765%	8.7392%	7.9008%
Cladosporium herbarum	10.6951%	9.4235%	8.4219%	7.6126%
Scopulariopsis brevicaulis	9.9825%	8.7913%	7.8540%	7.0972%
Bacillus Anthacis spores	9.0419%	7.9580%	7.1060%	6.4187%
Aspergillus fumigatus spores	3.0998%	2.7176%	2.4194%	2.1801%
Aspergillus niger spores	2.1173%	1.8551%	1.6507%	1.4868%
Cladosporium wemecki	1.5471%	1.3550%	1.2053%	1.0855%
stachybotrys chartarum	1.2456%	1.0908%	0.9702%	0.8736%
Myxobolus cerebralis	0.7007%	0.6134%	0.5454%	0.4910%
Moraxella	0.6703%	0.5868%	0.5217%	0.4697%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filter has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Maintenance Schedule

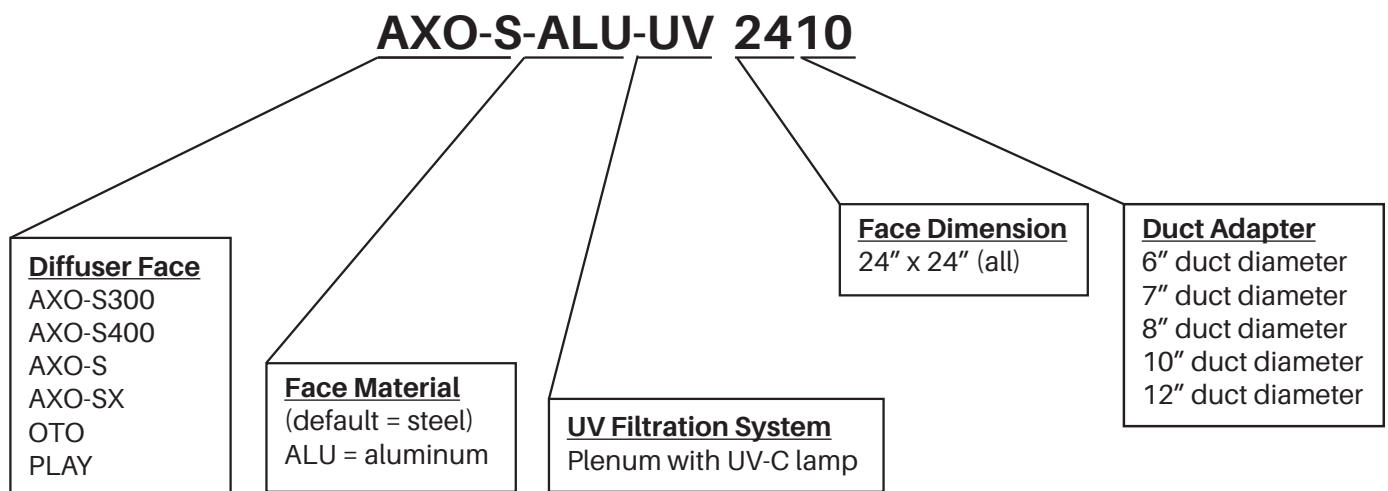
Filter Replacement: every 3 to 6 months depending on the ventilation system’s filtration quality and cleanliness of the duct line.

UV Lamp Replacement: every 2 years or 17,000 hours.

How to Specify OTO-UV

Supply and mounting of square architectural swirl UV Diffuser OTO-UV, with stamped curved slots in radial pattern, dimension 24x24 inches. Hinged and removable face constructed from galvanized steel face panel powder coated in white M9016. Plenum constructed of aluminum with integrated zero ozone emission UV-C lamp made of quartz, UV Barrier for the safety of room occupants, and two safety interlock switches powering off the system in the absence of the UV Barrier or when the face is open. Shall be supplied and installed with matching aluminum conical duct adapter for UV diffusers. Plenum must have earthquake tabs to secure the product to the building structure. Must be UL certified for the safety of its electrical system and UV emissions. SARS-CoV-2 single-pass germicidal irradiation performance greater than 99.9% at 458 cfm must have been demonstrated by triple redundancy tests with two control points conducted by a 3rd party laboratory with the real virus. By EffectiV HVAC Inc.

How to Order UV Diffusers





UV DIFFUSERS

UVdiffusers.com



PATENT PENDING












PLAY-UV

360° Adjustable High Induction UV Diffuser



PLAY-UV SERIES

Adjustable UV Diffuser

-  UV Diffusers help contain the spread of viruses and bacteria through ventilation systems
-  3-in-1 solution combining UV-C irradiation, air filtration and improved air mixing and room ventilation
-  Single-pass deactivation of airborne viruses and bacteria
-  Tested with the real SARS-CoV-2 virus in a 3rd party laboratory, achieving a 99.949% single-pass virus deactivation at 458 cfm
-  Hinged face provide easy access for filter change and maintenance
-  360 degree adjustable airflow, optimal between 125 cfm and 400 cfm
-  Suitable for new buildings and existing buildings
-  High discharge velocity provide efficient mixing of supplied air with room air
-  Architecturally appealing curves and design
-  Lay-in, duct mounted or drywall mounted, suitable for all ceilings
-  Built-in earthquake tabs



PLAY-UV

PATENT PENDING



UV Diffusers by EffectiV treat the recycled air in commercial and institutional to help prevent the spread of airborne viruses and bacteria through the ventilation system. They are a 3-in-1 solution cleaning recycled air from pathogens using UV-C light, filtering the air from larger particles with a MERV-9 filter, and improving air mixing and room ventilation. By treating the air at the end of the duct line and by optimizing both the UV light intensity and microbes' exposure time inside the irradiation chamber, UV Diffusers achieve very high single-pass microbial deactivation rates.







They are a practical solution which can be installed in most existing buildings without other significant upgrades, and offer easy access for maintenance and filter replacement. They are also an energy efficient solution to treat the air.

PLAY-UV adjustable diffusers are designed to be used in air conditioning, ventilation and heating systems at a temperature differential up to 22°F (12°C) and a maximum temperature of 110°F (43°C). They can be mounted in false ceilings, on drywall, or suspended from the ceiling, from 8.5 feet to 13 feet (2.6 up to 4 meters) high. PLAY diffusers allow a flow variation of 60% while keeping the air stream stable.

PLAY is the only diffuser in the world providing a full 360-degree horizontal adjustment of the airflow. Each round sector can be manually rotated from the face to redirect the airflow exactly where we need it. It ships as a swirl diffuser and can be manually adjusted to make it a 1-way, 2-way, 3-way or 4-way diffuser, or any hybrid combination.

PLAY allows us to also reach parts of the room which would otherwise lack proper ventilation, either because of the room configuration, the diffuser's location, objects obstructing the air jet, or other factors. PLAY also allows us to improve thermal comfort by redirecting the air jet away from people feeling air drafts, or towards sources of heat gain/loss like large windows. Thanks to the PLAY diffuser, HVAC technicians can shape the air circulation in the room with precision, ensuring an almost perfect ventilation in any room configuration.

Applications

-  Office Buildings
-  Healthcare, Hospitals, Dental Clinics
-  Nursing Homes
-  Schools
-  Hospitality, Restaurants
-  Retail, Shopping Malls

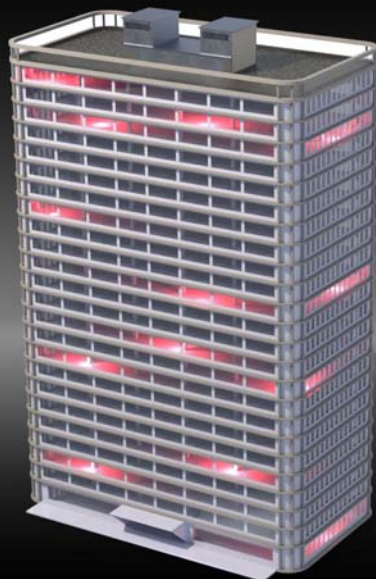


PREVENTING THE SPREAD OF VIRUSES AND BACTERIA THROUGH VENTILATION SYSTEMS IN COMMERCIAL BUILDINGS

Some airborne virus particles are too small to be entirely caught by standard filters. Also, the greater the filter efficiency is, the more pressure is added to the HVAC system. Most ventilation systems in commercial and institutional buildings recycle and recirculate a large percentage of the air without proper treatment and filtration. This is done in order to save energy, but quite problematic when dealing with airborne diseases. Microbes can easily spread between rooms via the ventilation system.

UV Diffusers are a high efficiency single-pass solution to treat recycled air. Diffusers are the last thing that the air passes through before entering the room, making any possible re-contamination of the air impossible. Once UV Diffusers are installed in a space, they act as a shield against pathogens and contaminants, protecting that room from the rest of the building.

UV Diffusers can replace existing diffusers in the whole building, or be installed in a single space. Easy access to ceiling diffusers gives building owners and occupants a lot of flexibility in implementing this solution.



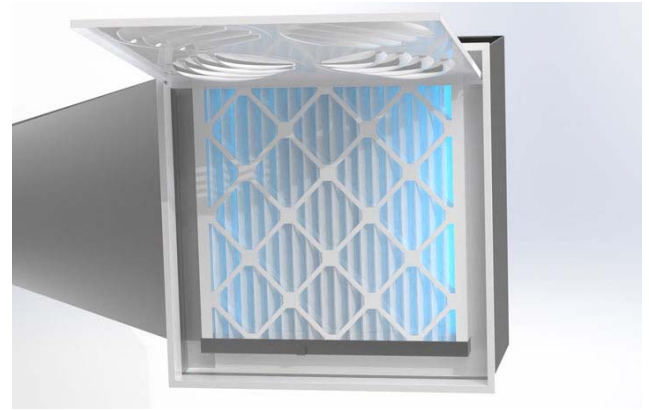
The use of this device is a supplement to and not a substitute for standard infection control practices; users must continue to follow all current infection control practices, including those related to the cleaning and disinfection of environmental surfaces.

How UV Diffusers Work

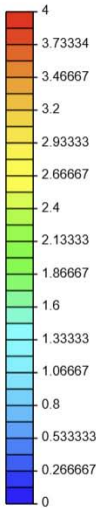
1. Air Filtration

UV Diffusers integrate a UV-resistant MERV-9 or MERV-7 filter to catch larger particles including dust, spores and mites, removing allergens and other irritants, and improving air quality.

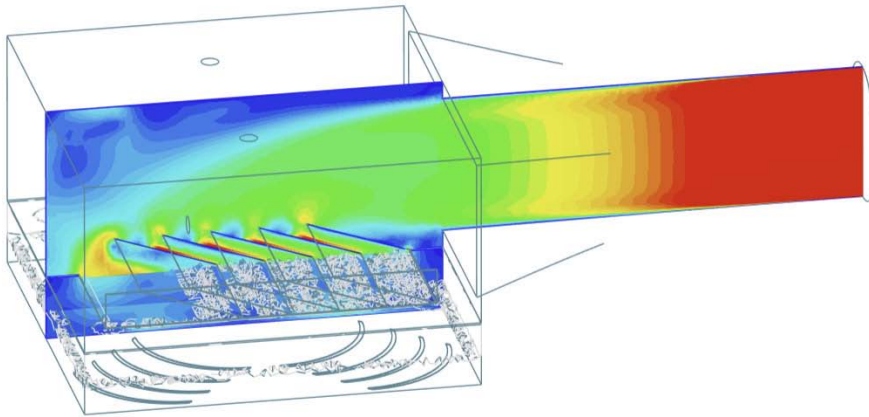
The filter also helps to pressurize the air inside the plenum and slow it down significantly.



All Velocity (m/s)

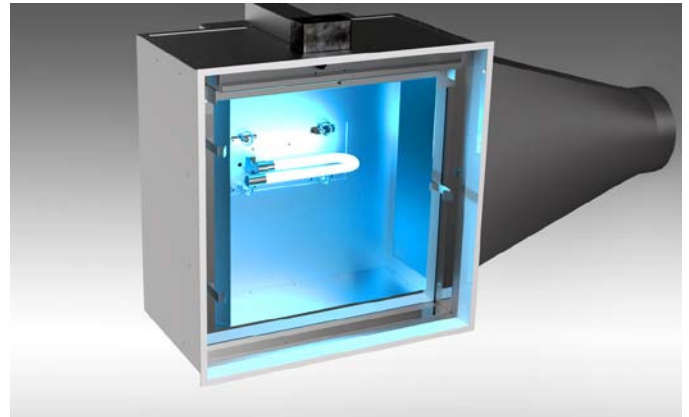


350 cfm

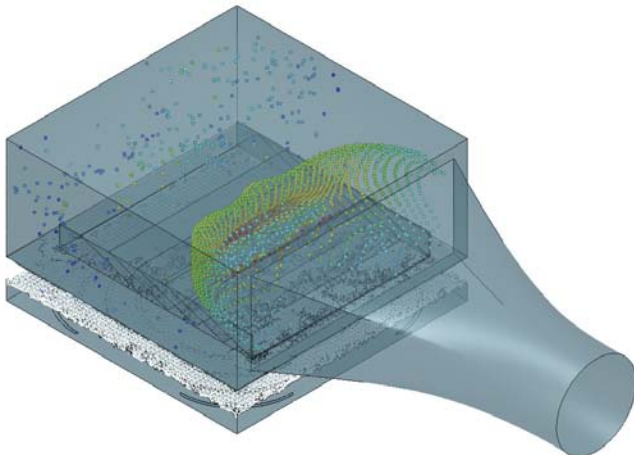
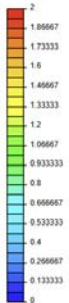


2. UV-C Germicidal Irradiation

UV Diffusers also integrate a UV-C lamp to irradiate viruses and bacteria. The air velocity being significantly lower in the diffuser than it is in the duct, pathogens exposure to UV-C light and therefore disinfection efficiency are multiplied by a factor of 2 to 8 times.



All Velocity (m/s)



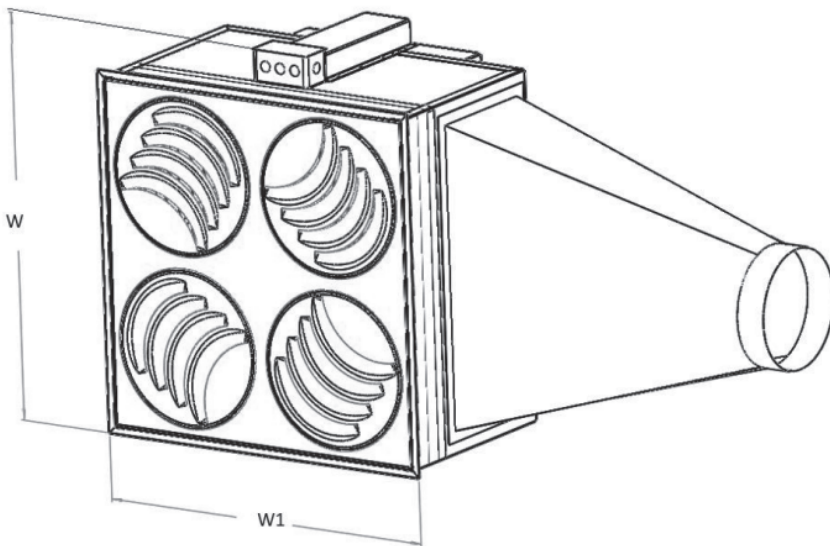
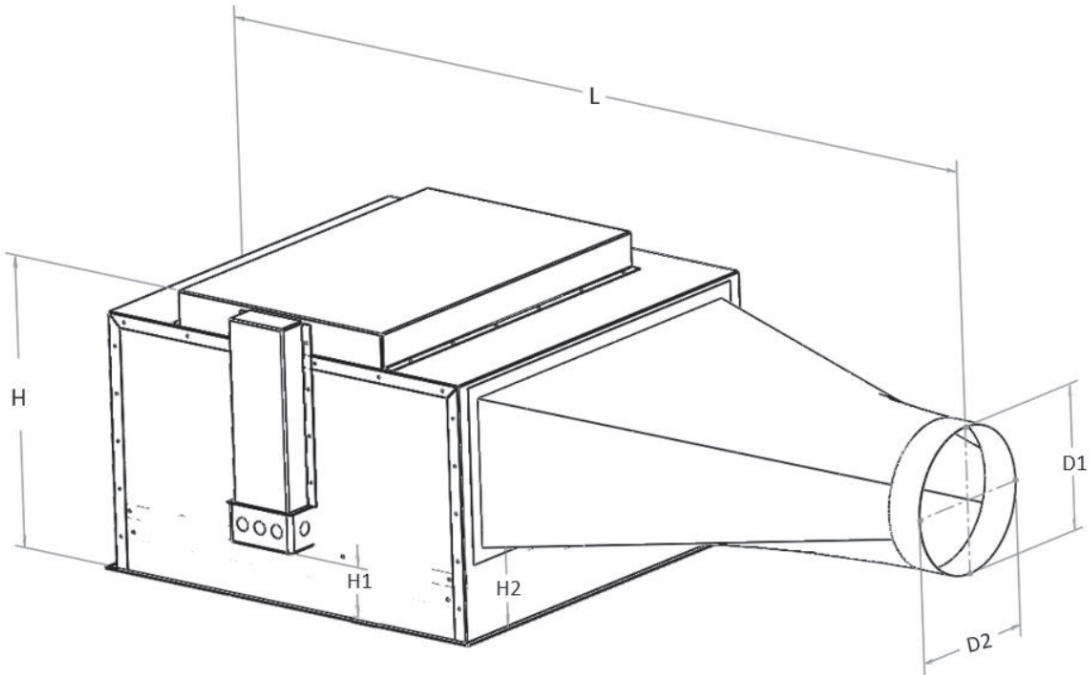
The placement of the UV lamp, the airflow trajectory, the shape and dimension of the plenum and collar for light reflection and the materials - everything has been thought out in order to improve air disinfection efficiency.

3. Improved Ventilation

PLAY-UV adjustable UV diffuser features a 360-degree adjustment of the airflow combined with a high discharge velocity to provide better mixing of the new air with room air. The result is an improved room ventilation and faster removal of contaminants. Another benefit is a significant improvement of occupants' thermal comfort. Better air mixing can also help optimizing the performance of the HVAC system and reduce energy consumption.



Dimensions



Dimensions	
W	25 2/3"
W1	23 7/8"
H	15 7/8"
H1	3 9/16"
H2	4 3/4"
L	47 1/2"

Duct Diameter	D1	D2
6"	5 7/8"	5 7/8"
7"	6 7/8"	6 7/8"
8"	7 7/8"	7 7/8"
10"	11"	8"
12"	16"	8"

Safety

UV Diffusers certified UL in USA and Canada for safety in regards to electrical and UV irradiation hazards. UV-C light is contained within the diffuser in order to ensure room occupants' safety.

Interlock switches are also in place to ensure maintenance personnel's safety.

High quality lamps made of quartz do not emit any ozone nor other harmful particles. UV Diffusers are certified Zero Ozone Emission by UL

UV Diffusers are also certified by the California Air Resources Board



Mechanical Specifications

Maximum Product Weight	34 lbs
Hinged Face	Yes
Removable Face	Yes
Filter Replacement Through Face	Yes
UV Lamp Replacement Through Face	Yes

Electrical Specifications

Diffuser Voltage	120 V / 240 V
UV Diffuser Wattage	40 W
Safety Switch - Opened Face	Yes
Safety Switch - No UVC Barrier	Yes

UV Specifications

UV Output 253.7nm - 100hr (per lamp)	12.0 W
Intensity @ 1m (per lamp)	90 μW/cm ²
UVA	No
UVB	No
UVC	Yes
Ozone emission	No
Lamp Life Expectancy	17,000 hours
Lamp Diameter	T6 (19 mm)
Lamp Geometry	'J' Shape
Lamp Type	Quartz

Filter Options for UV Diffusers

UVFILTER-W-M9 UV-Resistant 20" x 20" x 2" White MERV-9 Pleated Filter

UVFILTER-W-M9	
Minimum Efficiency Rating Value (AHRAE 52.2)	MERV 9 @ 1968 cfm
Initial Resistance @ 492 cfm	0.021 in.w.g
UL Certification	Yes



UVFILTER-C-M7 UV-Resistant 20" x 20" x 2" MERV-7 Carbon Pleated Filter

UVFILTER-C-M7	
Minimum Efficiency Rating Value (AHRAE 52.2)	MERV 7 @ 1968 cfm
Initial Resistance @ 492 cfm	0.08 in.w.g
UL Certification	Yes

Standard Airflow Configurations

PLAY-UV Diffusers are configured as swirl diffusers at the factory. They can be easily adjusted on site but rotating each round sector manually, clockwise or counterclockwise.

PLAY can be configured as 1-Way, 2-Way, 3-Way or 4-Way diffuser, and also offer infinite custom configuration possibilities.



Swirl



1-Way



2-Way



3-Way



4-Way



Airflow Performance Data

Dim	Free Area (sqf)	Min cfm	Max cfm
24"x24" (610mm)	0.43	125	400



Swirl

PLAY-UV Performance Data - Swirl Diffusion

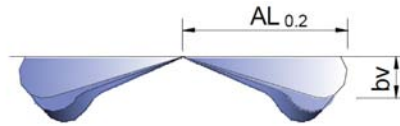
Duct Dia (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041	.062
6	CFM				98	118	137	157	196
	Pressure Loss (in.w.g.) - White Filter				0.014	0.019	0.025	0.032	0.048
	Pressure Loss (in.w.g.) - Carbon Filter				0.022	0.029	0.036	0.045	0.064
	NC				< 15	< 15	< 15	< 15	16
	Throw (ft) - Coanda Effect				2-2-4	2-3-4	2-3-5	2-4-6	3-5-7
	Throw (ft) - No Ceiling				1-2-3	1-2-3	2-3-4	2-3-4	2-4-5
8	CFM		105	140	175	209	244	279	349
	Pressure Loss (in.w.g.) - White Filter		0.016	0.026	0.039	0.054	0.072	0.092	0.140
	Pressure Loss (in.w.g.) - Carbon Filter		0.025	0.038	0.053	0.071	0.091	0.114	0.167
	NC		< 15	< 15	< 15	18	22	25	31
	Throw (ft) - Coanda Effect		2-3-4	2-3-5	3-4-6	3-5-7	3-6-9	4-6-10	5-8-12
	Throw (ft) - No Ceiling		1-2-3	2-3-4	2-3-5	2-4-6	3-4-6	3-5-7	4-6-9
10	CFM	109	164	218	273	327	382	436	545
	Pressure Loss (in.w.g.) - White Filter	0.017	0.034	0.058	0.088	0.124	0.167	0.215	0.330
	Pressure Loss (in.w.g.) - Carbon Filter	0.026	0.047	0.076	0.110	0.149	0.196	0.247	0.369
	NC	< 15	< 15	19	25	30	34	37	43
	Throw (ft) - Coanda Effect	2-3-4	2-4-6	3-5-8	4-6-10	4-8-11	5-9-13	6-10-15	9-16-24
	Throw (ft) - No Ceiling	1-2-3	2-3-4	2-4-6	3-5-7	3-6-8	4-6-10	4-7-11	7-12-18
12	CFM	157	236	314	393	471	550		
	Pressure Loss (in.w.g.) - White Filter	0.032	0.067	0.115	0.176	0.249	0.336		
	Pressure Loss (in.w.g.) - Carbon Filter	0.045	0.086	0.139	0.206	0.284	0.375		
	NC	< 15	21	29	35	39	44		
	Throw (ft) - Coanda Effect	2-4-6	3-6-8	4-7-11	5-9-13	6-10-16	7-12-18		
	Throw (ft) - No Ceiling	2-3-4	3-4-6	3-5-8	4-7-10	5-8-12	5-9-14		

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm**, respectively.
- Pressure Loss values represent the total pressure drop of the diffuser, plenum and filter assembled together.

Throw Correction Factors - Temperature

Delta T Correction Factors		
ΔT (F)	Kh	KI
0	.039	1
-2	.042	.965
-4	.046	.93
-6	.05	.91
-8	.055	.86
-10	.065	.84
-12	.074	.82
-15	.099	.78



$bv = kh \times \text{Throw}$

$\text{Throw}'(\Delta T) = KI \times \text{Throw}$

Kh = Correction Factor for Vertical Diffusion

KI = Throw Correction Factor

AL_{0.2} = Distance at which velocity reaches 40 fpm

Induction Ratio and Delta T Ratio

Ratios		
Throw (ft)	i	Delta T Ratio
4	7	0.092
6	12	0.059
8	14	0.043
10	18	0.034
15	28	0.023
20	40	0.017
25	49	-
30	61	-

induced room air = supplied cfm * i

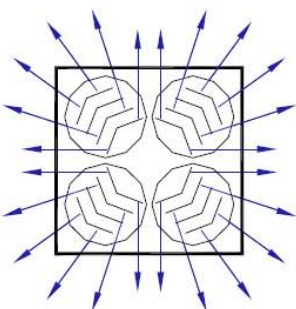
induced room air = cfm mixed for given throw

Delta T (Throw) = Delta T (Supply) * Delta T Ratio

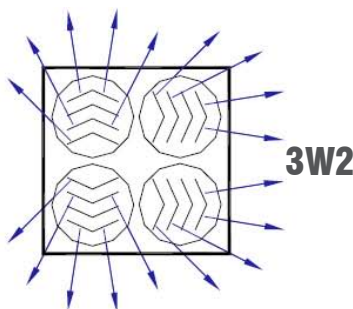
Delta T (Supply) = T (Room) - T (Supply)

Delta T (Throw) = T (Room) - T (Throw)

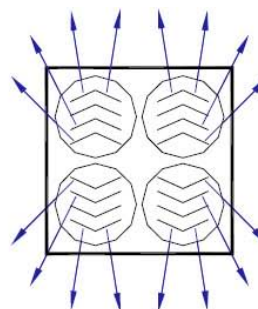
PLAY-UV Directional Airflow Configurations



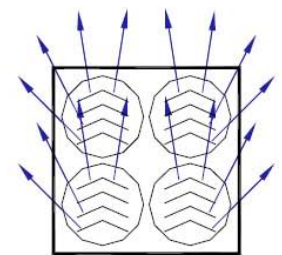
4-Way



3-Way

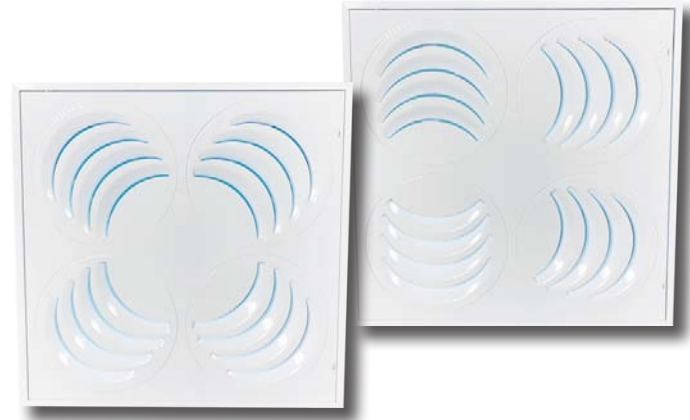


2-Way



1-Way

PLAY-UV Performance Data - Directional



Duct Dia (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000	
	Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041	.062	
6	CFM			79	98	118	137	157	196	
	Pressure Loss (in.w.g.) - White Filter			0.010	0.014	0.019	0.025	0.032	0.048	
	Pressure Loss (in.w.g.) - Carbon Filter			0.007	0.022	0.029	0.036	0.045	0.064	
	NC			< 15	< 15	< 15	< 15	< 15	16	
	Throw (ft)	4W, 3W			2-3-4	2-4-5	2-4-6	3-5-7	3-6-8	3-6-9
		3W2, 2W			3-6-10	4-7-11	4-8-12	5-9-14	6-11-16	7-13-19
1W				5-9-13	6-10-13	6-11-16	7-12-18	8-14-21	10-17-25	
8	CFM	70	105	140	175	209	244	279	349	
	Pressure Loss (in.w.g.) - White Filter	0.008	0.016	0.026	0.039	0.054	0.072	0.092	0.140	
	Pressure Loss (in.w.g.) - Carbon Filter	0.014	0.025	0.038	0.053	0.071	0.091	0.114	0.167	
	NC	< 15	< 15	< 15	< 15	18	22	25	31	
	Throw (ft)	4W, 3W	2-3-4	2-4-5	3-5-7	3-6-9	4-7-10	5-8-12	5-8-13	7-11-16
		3W2, 2W	3-6-10	4-7-11	5-9-14	7-12-18	8-14-21	9-16-24	10-17-26	13-22-34
1W		5-9-12	6-10-14	7-12-18	9-16-24	11-18-27	12-20-30	13-22-33	17-28-42	
10	CFM	109	164	218	273	327	382	436	545	
	Pressure Loss (in.w.g.) - White Filter	0.017	0.034	0.058	0.088	0.124	0.167	0.215	0.330	
	Pressure Loss (in.w.g.) - Carbon Filter	0.026	0.047	0.076	0.110	0.149	0.196	0.247	0.369	
	NC	< 15	< 15	17	23	28	32	36	42	
	Throw (ft)	4W, 3W	2-4-5	3-5-8	4-7-10	5-8-13	6-10-15	7-11-17	8-13-19	9-16-24
		3W2, 2W	4-7-11	6-11-16	8-14-21	10-17-26	12-20-32	14-23-35	16-26-39	19-32-48
1W		6-10-14	8-14-21	11-18-27	13-22-33	16-26-39	18-30-45	20-34-51	25-42-63	
12	CFM	157	236	314	393	471	550			
	Pressure Loss (in.w.g.) - White Filter	0.032	0.067	0.115	0.176	0.249	0.336			
	Pressure Loss (in.w.g.) - Carbon Filter	0.045	0.086	0.139	0.206	0.284	0.375			
	NC	< 15	21	28	34	39	43			
	Throw (ft)	4W, 3W	4-6-9	5-8-12	6-9-14	7-12-18	9-15-22	9-16-24		
		3W2, 2W	7-13-19	9-16-24	11-19-29	15-24-37	18-29-44	19-32-48		
1W		10-16-24	12-20-30	15-24-36	19-32-48	23-38-57	25-42-63			

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm**, respectively.
- Pressure Loss values represent the total pressure drop of the diffuser, plenum and filter assembled together.

Single-Pass Germicidal Irradiation Performance - 100-300 CFM (1/2)

Bio-contaminants	100 cfm	150 cfm	200 cfm	250 cfm	300 cfm
Mycobacterium tuberculosis	>99.9999%	>99.9999%	>99.9999%	>99.9999%	>99.9999%
Legionella pneumophila	>99.9999%	>99.9999%	>99.9999%	>99.9999%	>99.9999%
Candida auris	>99.9999%	>99.9999%	>99.9999%	>99.9999%	>99.9999%
SARS-CoV-1	>99.9999%	>99.9999%	>99.9999%	>99.9999%	99.9999%
Proteus mirabilis	>99.9999%	>99.9999%	>99.9999%	99.9996%	99.9967%
Mycoplasma pneumoniae	>99.9999%	>99.9999%	>99.9999%	99.9994%	99.9952%
Listeria monocytogenes	>99.9999%	>99.9999%	99.9996%	99.9948%	99.9729%
Salmonella	>99.9999%	>99.9999%	99.9993%	99.9922%	99.9623%
Aeromonas	>99.9999%	>99.9999%	99.9981%	99.9832%	99.9285%
SARS-CoV-2	>99.9999%	99.9998%	99.9955%	99.9666%	99.8731%
Rickettsia prowazekii	>99.9999%	99.9996%	99.9919%	99.9465%	99.8122%
Staphylococcus epidermis	>99.9999%	99.9990%	99.9829%	99.9030%	99.6916%
E. Coli	>99.9999%	99.9985%	99.9764%	99.8746%	99.6182%
Yersinia enterocolitica	>99.9999%	99.9982%	99.9729%	99.8599%	99.5811%
Coxiella burnetii	>99.9999%	99.9982%	99.9729%	99.8598%	99.5809%
Lactobacillus reuteri	>99.9999%	99.9982%	99.9729%	99.8598%	99.5809%
Vaccinia virus	>99.9999%	99.9982%	99.9721%	99.8568%	99.5734%
Smallpox	>99.9999%	99.9982%	99.9718%	99.8555%	99.5703%
Newcastle disease	>99.9999%	99.9965%	99.9549%	99.7894%	99.4119%
Acinetobacter baumannii	99.9999%	99.9892%	99.8938%	99.5824%	98.9594%
Influenza A virus	99.9997%	99.9794%	99.8282%	99.3862%	98.5655%
MRSA	99.9994%	99.9684%	99.7632%	99.2064%	98.2232%
Coxsackievirus	99.9993%	99.9636%	99.7364%	99.1355%	98.0918%
Avian Influenza virus	99.9988%	99.9480%	99.6556%	98.9292%	97.7193%
Measle virus	99.9987%	99.9445%	99.6386%	98.8872%	97.6449%
Pseudomonas aeruginosa	99.9986%	99.9429%	99.6307%	98.8680%	97.6110%
Serratia marcescens	99.9962%	99.8860%	99.3796%	98.2854%	96.6235%
Parvovirus H-1	99.9947%	99.8588%	99.2715%	98.0505%	96.2422%
Proteus vulgaris/mirabilis	99.9729%	99.5809%	98.3529%	96.2556%	93.5263%
Corynebacterium diphtheriae	99.9447%	99.3265%	97.6490%	95.0227%	91.7934%
Ustilago zeae	99.9124%	99.0848%	97.0409%	94.0170%	90.4332%
Streptococcus pyogenes	99.8629%	98.7659%	96.2974%	92.8418%	88.8911%
Haemophilus influenza	99.8354%	98.6058%	95.9427%	92.2982%	88.1925%
Yeast	99.7885%	98.3526%	95.4016%	91.4869%	87.1647%
Klebsiella pneumoniae	99.7159%	97.9941%	94.6699%	90.4195%	85.8369%
Neisseria catarrhalis/meningitidis	99.6300%	97.6076%	93.9169%	89.3512%	84.5326%
Clostridium tetani	99.3448%	96.4984%	91.9053%	86.6168%	81.2875%
Vancomycin Resistant Enterococcus	98.8704%	94.9656%	89.3717%	83.3593%	77.5624%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filter has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Single-Pass Germicidal Irradiation Performance - 100-300 CFM (2/2)

Bio-contaminants	100 cfm	150 cfm	200 cfm	250 cfm	300 cfm
Burkholderia cenocepacia	98.5490%	94.0510%	87.9543%	81.6064%	75.6094%
Adenovirus	98.4594%	93.8085%	87.5879%	81.1602%	75.1174%
Enterobacter cloacae	97.8717%	92.3202%	85.4114%	78.5607%	72.2875%
Reovirus	97.2486%	90.8861%	83.4127%	76.2414%	69.8108%
Norwalk virus	96.1334%	88.5655%	80.3364%	72.7773%	66.1850%
Echovirus	90.3990%	79.0326%	69.0145%	60.8324%	54.2098%
Bacillus Anthacis	83.2521%	69.6164%	59.0759%	51.0690%	44.8787%
Cryptococcus neoformans	83.2521%	69.6164%	59.0759%	51.0690%	44.8787%
Blastomyces dermatidis	82.7981%	69.0697%	58.5248%	50.5427%	44.3850%
Histoplasma capsulatum	82.7981%	69.0697%	58.5248%	50.5427%	44.3850%
Mucor spores	82.7981%	69.0697%	58.5248%	50.5427%	44.3850%
Bacillus subtilis spores	80.9576%	66.9010%	56.3624%	48.4903%	42.4683%
Francisella Tularensis	79.3443%	65.0570%	54.5515%	46.7872%	40.8874%
Fusarium oxysporum	78.1157%	63.6848%	53.2193%	45.5431%	39.7379%
Botrytis cinerea	62.6337%	48.1215%	38.8720%	32.5484%	27.9733%
Rhizopus nigricans	60.1987%	45.8916%	36.9117%	30.8234%	26.4416%
Nocardia asteroides	58.5026%	44.3651%	35.5815%	29.6590%	25.4112%
Penicillium digitatum	53.6181%	40.0808%	31.8957%	26.4573%	22.5925%
Bacillus Cereus spores	45.3095%	33.1233%	26.0470%	21.4466%	18.2218%
Algae blue-green	42.1803%	30.5961%	23.9607%	19.6788%	16.6910%
Streptococcus Pneumoniae	40.9296%	29.5988%	23.1427%	18.9883%	16.0946%
Penicillium chrysogenum	37.1475%	26.6250%	20.7205%	16.9520%	14.3408%
Trichophyton rubrum	35.5815%	25.4112%	19.7389%	16.1305%	13.6352%
Candida albicans	35.3052%	25.1981%	19.5669%	15.9868%	13.5119%
Mucor mucedo	34.7491%	24.7700%	19.2220%	15.6986%	13.2648%
Clostridium Difficile spores	33.7359%	23.9932%	18.5972%	15.1775%	12.8181%
Cladosporium herbarum	32.6926%	23.1975%	17.9589%	14.6458%	12.3630%
Scopulariopsis brevicaulis	30.7938%	21.7598%	16.8097%	13.6906%	11.5465%
Bacillus Anthacis spores	28.2297%	19.8390%	15.2827%	12.4255%	10.4673%
Aspergillus fumigatus spores	10.4354%	7.0839%	5.3614%	4.3126%	3.6070%
Aspergillus niger spores	7.2164%	4.8707%	3.6757%	2.9516%	2.4658%
Cladosporium wemecki	5.3108%	3.5726%	2.6916%	2.1591%	1.8026%
stachybotrys chartarum	4.2922%	2.8823%	2.1696%	1.7395%	1.4517%
Myxobolus cerebralis	2.4310%	1.6273%	1.2230%	0.9796%	0.8170%
Moraxella	2.3265%	1.5571%	1.1701%	0.9372%	0.7816%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filter has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Single-Pass Germicidal Irradiation Performance - 350-500 CFM (1/2)

Bio-contaminants	350 cfm	400 cfm	450 cfm	500 cfm
Mycobacterium tuberculosis	>99.9999%	99.9997%	99.9987%	99.9959%
Legionella pneumophila	99.9999%	99.9993%	99.9975%	99.9929%
Candida auris	99.9999%	99.9994%	99.9976%	99.9930%
SARS-CoV-1	99.9990%	99.9958%	99.9872%	99.9687%
Proteus mirabilis	99.9854%	99.9561%	99.8963%	99.7939%
Mycoplasma pneumoniae	99.9803%	99.9428%	99.8688%	99.7453%
Listeria monocytogenes	99.9124%	99.7889%	99.5814%	99.2762%
Salmonella	99.8836%	99.7293%	99.4778%	99.1168%
Aeromonas	99.7989%	99.5630%	99.2008%	98.7046%
SARS-CoV-2	99.6710%	99.3277%	98.8280%	98.1717%
Rickettsia prowazekii	99.5395%	99.0977%	98.4776%	97.6865%
Staphylococcus epidermis	99.2956%	98.6914%	97.8813%	96.8850%
E. Coli	99.1541%	98.4639%	97.5570%	96.4590%
Yersinia enterocolitica	99.0841%	98.3533%	97.4012%	96.2564%
Coxiella burnetii	99.0838%	98.3529%	97.4006%	96.2556%
Lactobacillus reuteri	99.0838%	98.3529%	97.4006%	96.2556%
Vaccinia virus	99.0697%	98.3307%	97.3695%	96.2153%
Smallpox	99.0640%	98.3217%	97.3570%	96.1991%
Newcastle disease	98.7751%	97.8763%	96.7418%	95.4114%
Acinetobacter baumannii	98.0022%	96.7418%	95.2335%	93.5378%
Influenza A virus	97.3695%	95.8549%	94.0961%	92.1652%
MRSA	96.8399%	95.1333%	93.1908%	91.0918%
Coxsackievirus	96.6407%	94.8658%	92.8591%	90.7023%
Avian Influenza virus	96.0858%	94.1311%	91.9576%	89.6522%
Measle virus	95.9767%	93.9881%	91.7837%	89.4510%
Pseudomonas aeruginosa	95.9272%	93.9234%	91.7051%	89.3603%
Serratia marcescens	94.5212%	92.1232%	89.5534%	86.9058%
Parvovirus H-1	93.9950%	91.4650%	88.7809%	86.0376%
Proteus vulgaris/mirabilis	90.4283%	87.1659%	83.8773%	80.6495%
Corynebacterium diptheriae	88.2704%	84.6672%	81.1154%	77.6901%
Ustilago zeae	86.6226%	82.7981%	79.0824%	75.5397%
Streptococcus pyogenes	84.7944%	80.7579%	76.8910%	73.2451%
Haemophilus influenza	83.9783%	79.8572%	75.9320%	72.2479%
Yeast	82.7902%	78.5561%	74.5549%	70.8228%
Klebsiella pneumoniae	81.2751%	76.9130%	72.8291%	69.0476%
Neisseria catarrhalis/meningitidis	79.8064%	75.3360%	71.1855%	67.3675%
Clostridium tetani	76.2254%	71.5489%	67.2844%	63.4170%
Vancomycin Resistant Enterococcus	72.2225%	67.3989%	63.0753%	59.2070%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filter has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Single-Pass Germicidal Irradiation Performance - 350-500 CFM (2/2)

Bio-contaminants	350 cfm	400 cfm	450 cfm	500 cfm
Burkholderia cenocepacia	70.1625%	65.2930%	60.9626%	57.1123%
Adenovirus	69.6473%	64.7692%	60.4393%	56.5952%
Enterobacter cloacae	66.7116%	61.8050%	57.4940%	53.6974%
Reovirus	64.1773%	59.2724%	54.9978%	51.2572%
Norwalk virus	60.5198%	55.6563%	51.4630%	47.8246%
Echovirus	48.8043%	44.3354%	40.5915%	37.4160%
Bacillus Anthacis	39.9830%	36.0280%	32.7726%	30.0493%
Cryptococcus neoformans	39.9830%	36.0280%	32.7726%	30.0493%
Blastomyces dermatidis	39.5226%	35.5988%	32.3718%	29.6741%
Histoplasma capsulatum	39.5226%	35.5988%	32.3718%	29.6741%
Mucor spores	39.5226%	35.5988%	32.3718%	29.6741%
Bacillus subtilis spores	37.7404%	33.9412%	30.8267%	28.2297%
Francisella Tularensis	36.2769%	32.5845%	29.5653%	27.0529%
Fusarium oxysporum	35.2162%	31.6036%	28.6551%	26.2051%
Botrytis cinerea	24.5166%	21.8156%	19.6482%	17.8711%
Rhizopus nigricans	23.1427%	20.5719%	18.5130%	16.8275%
Nocardia asteroides	22.2209%	19.7389%	17.7538%	16.1305%
Penicillium digitatum	19.7082%	17.4747%	15.6946%	14.2430%
Bacillus Cereus spores	15.8377%	14.0041%	12.5503%	11.3697%
Algae blue-green	14.4890%	12.7995%	11.4623%	10.3779%
Streptococcus Pneumoniae	13.9646%	12.3317%	11.0403%	9.9935%
Penicillium chrysogenum	12.4255%	10.9609%	9.8049%	8.8694%
Trichophyton rubrum	11.8075%	10.4114%	9.3103%	8.4197%
Candida albicans	11.6996%	10.3155%	9.2240%	8.3413%
Mucor mucedo	11.4834%	10.1234%	9.0512%	8.1842%
Clostridium Difficile spores	11.0929%	9.7765%	8.7392%	7.9008%
Cladosporium herbarum	10.6951%	9.4235%	8.4219%	7.6126%
Scopulariopsis brevicaulis	9.9825%	8.7913%	7.8540%	7.0972%
Bacillus Anthacis spores	9.0419%	7.9580%	7.1060%	6.4187%
Aspergillus fumigatus spores	3.0998%	2.7176%	2.4194%	2.1801%
Aspergillus niger spores	2.1173%	1.8551%	1.6507%	1.4868%
Cladosporium wemecki	1.5471%	1.3550%	1.2053%	1.0855%
stachybotrys chartarum	1.2456%	1.0908%	0.9702%	0.8736%
Myxobolus cerebralis	0.7007%	0.6134%	0.5454%	0.4910%
Moraxella	0.6703%	0.5868%	0.5217%	0.4697%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filter has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Maintenance Schedule

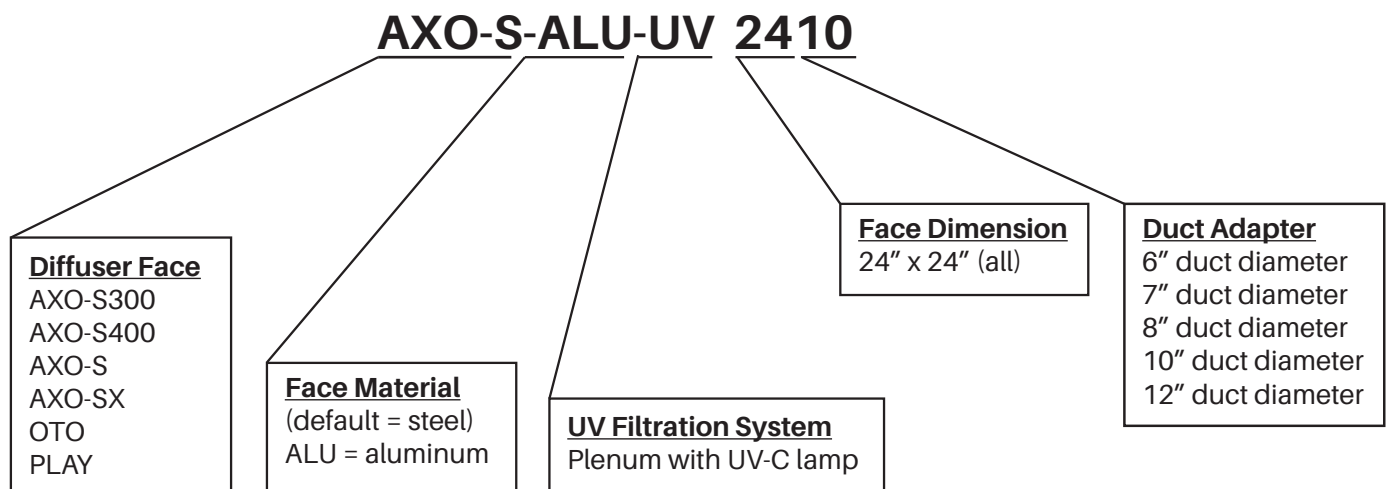
Filter Replacement: every 3 to 6 months depending on the ventilation system’s filtration quality and cleanliness of the duct line.

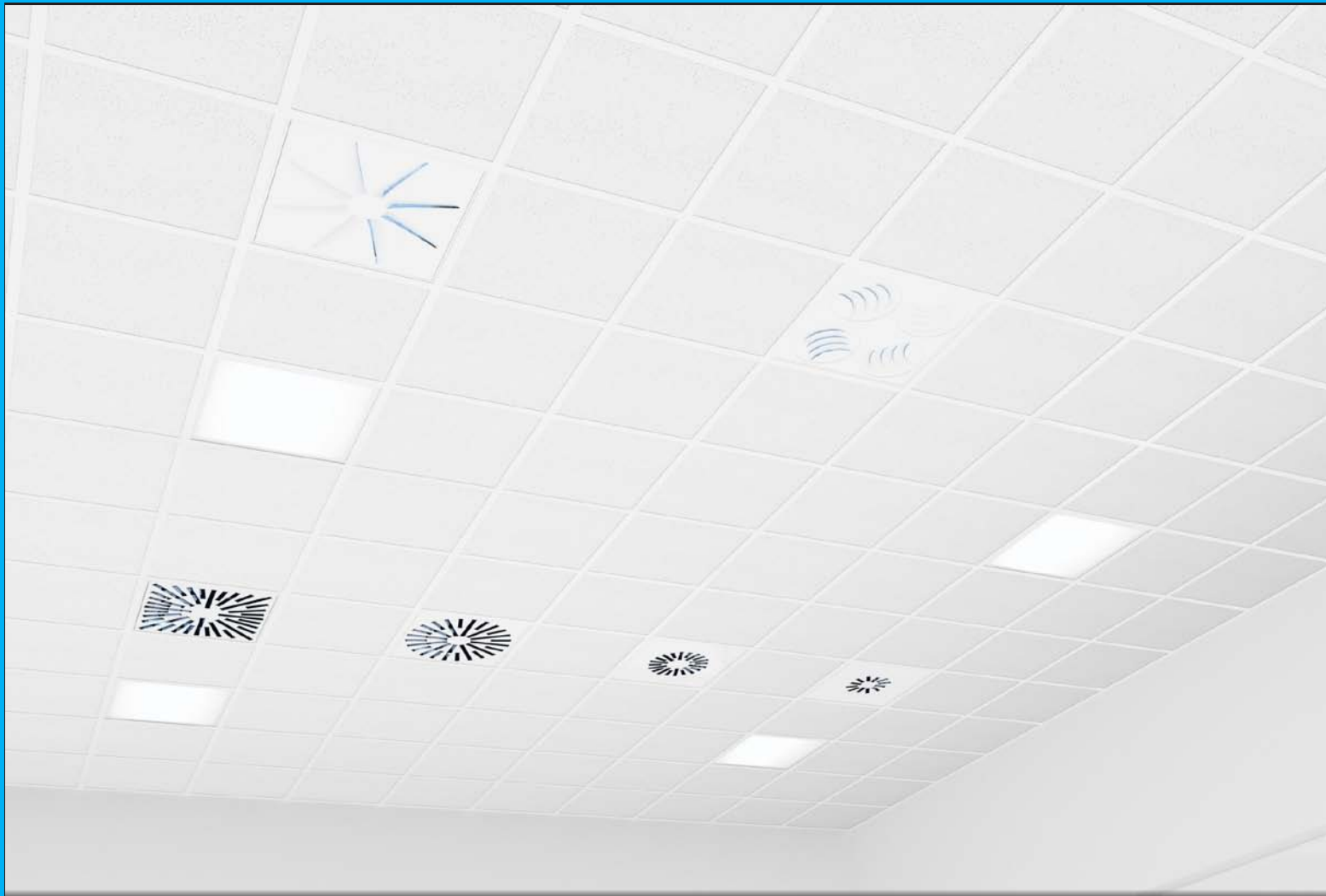
UV Lamp Replacement: every 2 years or 17,000 hours.

How to Specify PLAY-UV

Supply and mounting of adjustable UV Diffuser PLAY-UV with four manually adjustable round diffusion sectors allowing a full 360-degree adjustment of the airflow, dimension 24x24 inches. Hinged and removable face constructed from galvanized steel face panel powder coated in white M9016. Plenum constructed of aluminum with integrated zero ozone emission UV-C lamp made of quartz, UV Barrier for the safety of room occupants, and two safety interlock switches powering off the system in the absence of the UV Barrier or when the face is open. Shall be supplied and installed with matching aluminum conical duct adapter for UV diffusers. Plenum must have earthquake tabs to secure the product to the building structure. Must be UL certified for the safety of its electrical system and UV emissions. SARS-CoV-2 single-pass germicidal irradiation performance greater than 99.9% at 458 cfm must have been demonstrated by triple redundancy tests with two control points conducted by a 3rd party laboratory with the real virus. By EffectiV HVAC Inc.

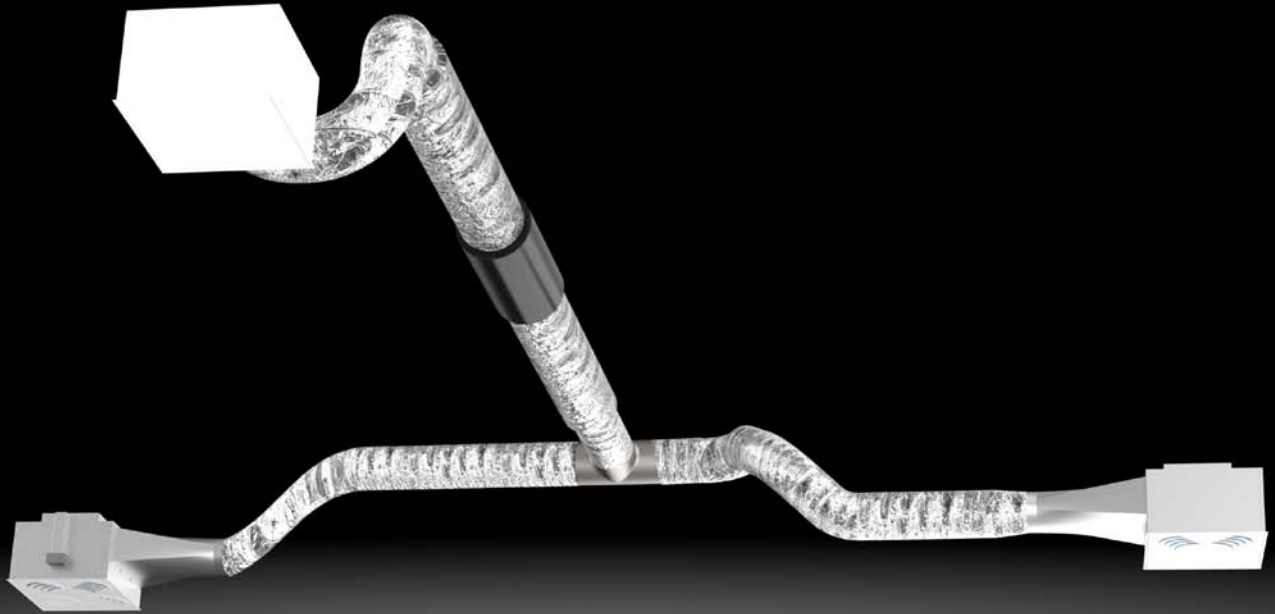
How to Order UV Diffusers





UV DIFFUSERS

UVdiffusers.com












UV PHANTOM
Independent Ceiling Air Purification System



UV PHANTOM

Independent Ceiling Air Purification System



-  Can treat up to 750 cfm with very high efficiency
-  Quiet
-  Discreet
-  Doesn't take any floor space
-  Flexible configuration and airflow to suit every room
-  Using two UV Diffusers UL certified for safety, with 3rd party validated performance against SARS-CoV-2
-  No direct air drafts causing occupants' discomfort
-  High discharge velocity near the ceiling provides efficient mixing of supplied air with room air
-  Architecturally appealing curves and design, uses FLYIN Architectural Filter Return

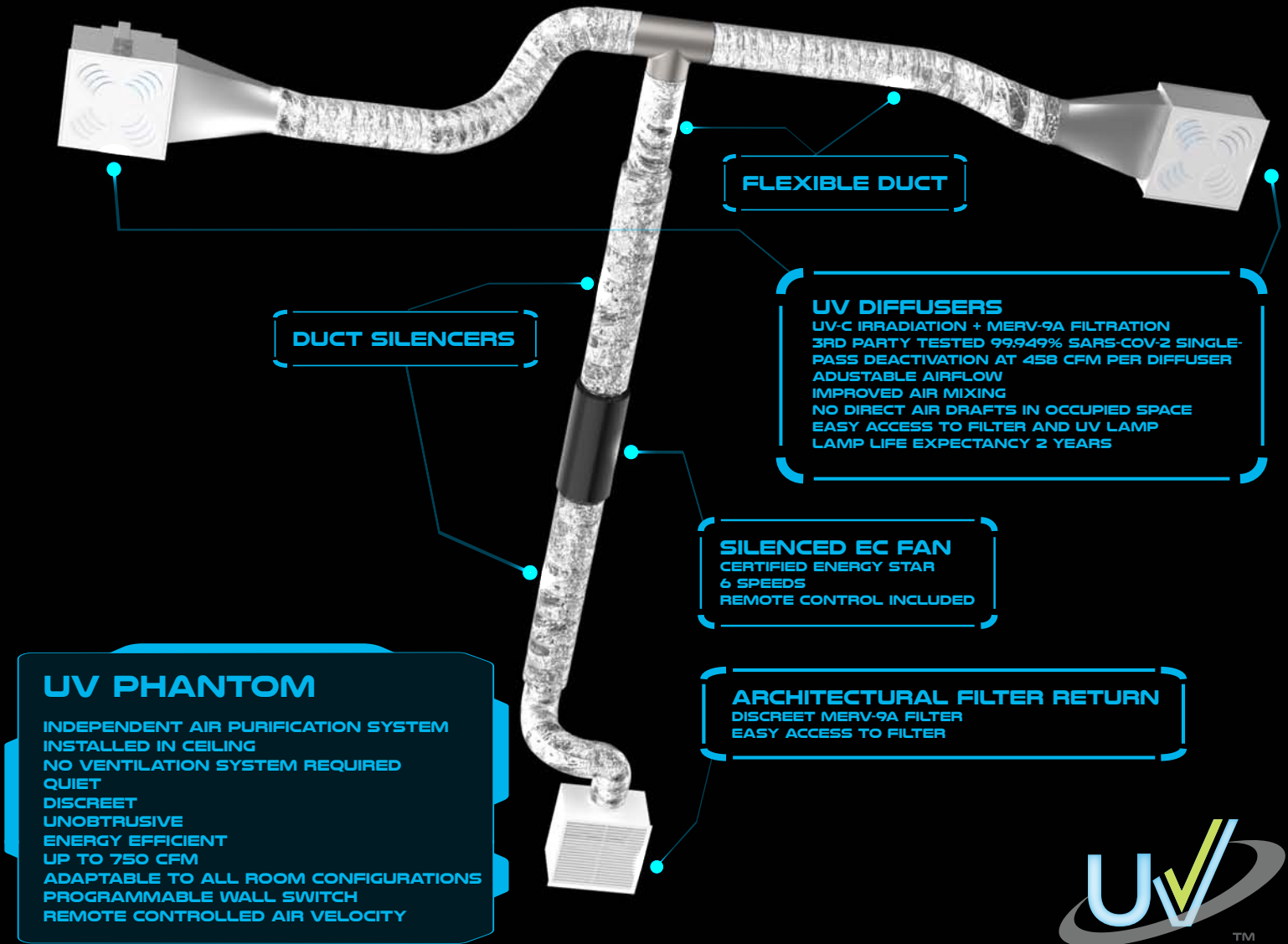
UV Phantom is an independent ceiling air purification system for schools, offices and other commercial buildings without ventilation systems, or in addition to existing HVAC systems to improve air quality.

It is quieter and more discreet than portable air purifiers despite its capacity of up to 750 cfm. The air is extracted through an architectural filter return, then purified and redistributed in the room with high efficiency through two AXO-S-UV or PLAY-UV diffusers. UV Diffusers have been 3rd party tested and achieved a single-pass efficiency of 99.949% against SARS-CoV-2 while supplying 458 cfm of air per diffuser. They are UL certified for Safety and Zero Ozone Emission.

The system features a remote-controlled silenced fan with 6 air velocity settings and certified Energy Star, as well as a programmable wall switch to automatically turn off the system at night. Extra silencers are also included to limit noise levels to a minimum despite the high volume of air treated.

Supplying purified air through two ceiling diffusers instead of a directional jet in the occupied space significantly improves occupants' thermal comfort and reduces the risk of direct airborne transmission. The whole system is linked with flexible ducts to offer great flexibility in the positioning of products. The PLAY-UV diffusers also provide a unique 360 degree adjustment of the air jet in order to optimize air mixing in any room configuration. UV Phantom offers great flexibility to adapt to various types of rooms. UV Phantom is discrete, quiet and aesthetically appealing like no other air purification device in this capacity range. Air purification devices should not be a nuisance to occupants, and UV Phantom achieves this with very high efficiency.





QUIET

Installed in the ceiling and powered by a quiet fan, enclosed in a silencer with extra silencers on both ends, UV Phantom is the quietest commercial air purifier in the 750 cfm range. The system can treat a large volume of air with a fraction of the noise of in-room air purifiers

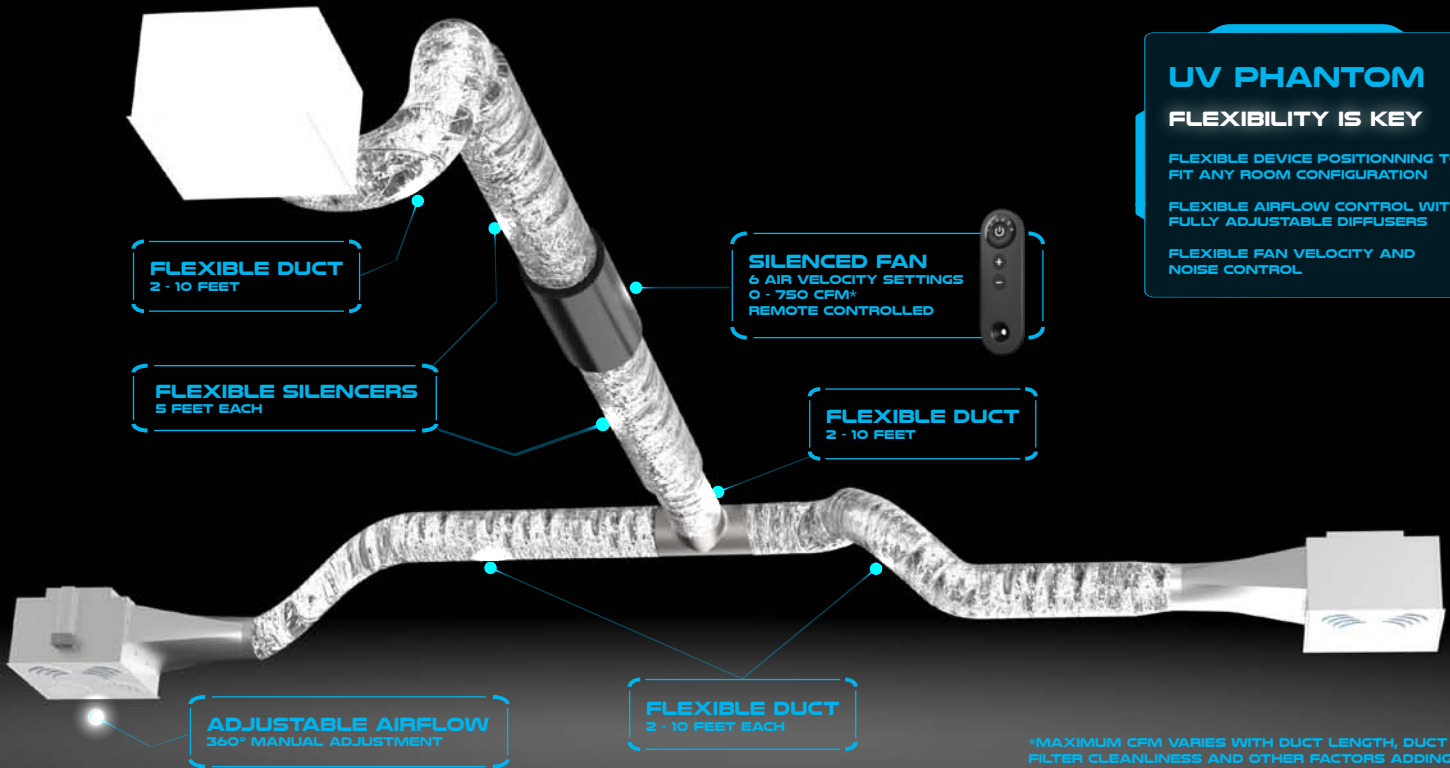
DISCREET

The only visible parts of the UV Phantom air purification system are the discreet architectural filter return and the two reassuring and esthetically pleasing UV Diffusers, all installed in the ceiling

UNOBTUSIVE

UV Phantom does not take any floor space and does not obstruct the view. It also discharges and mixes the air closer to the ceiling and doesn't create unwanted air drafts in the occupied space

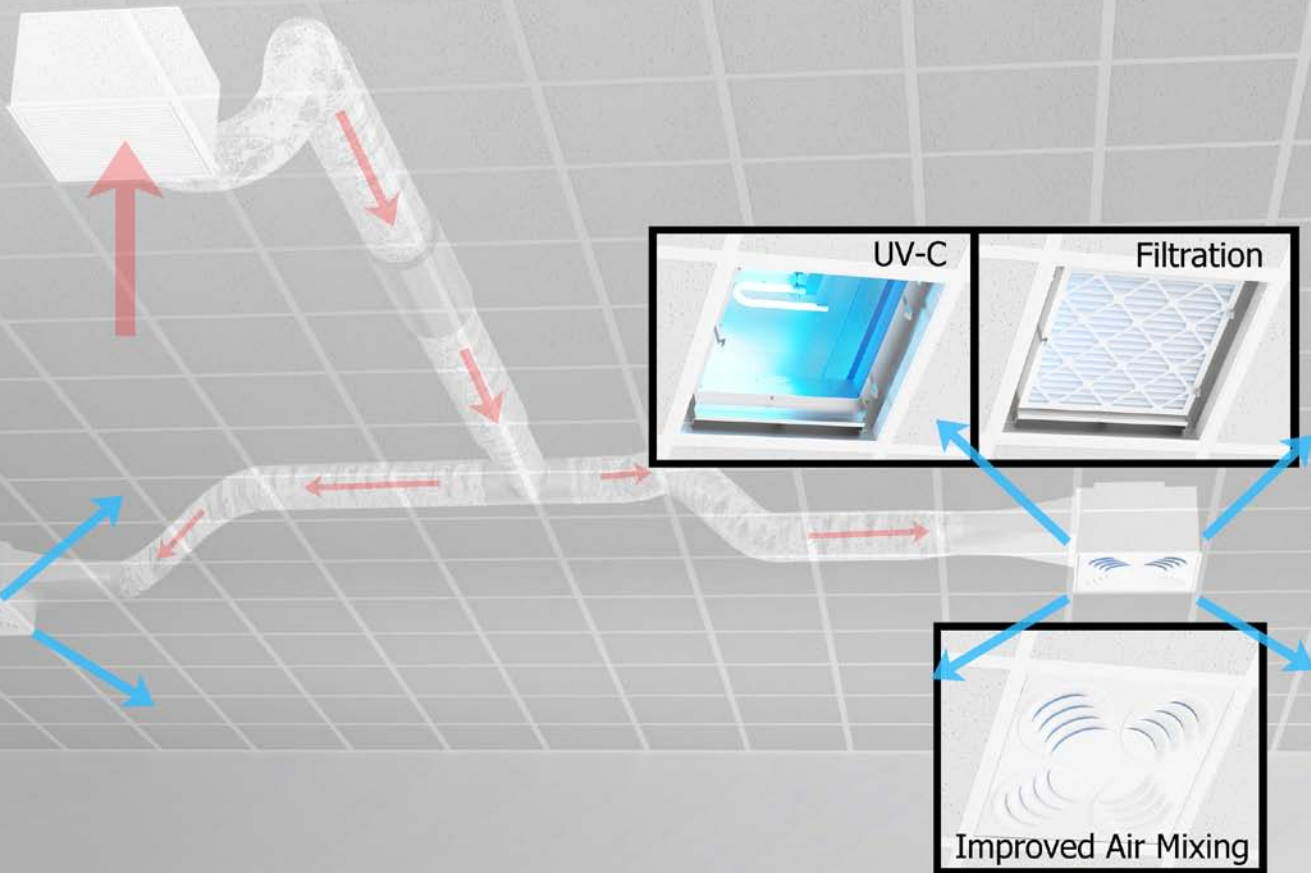
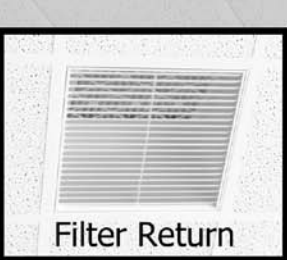
The use of this device is a supplement to and not a substitute for standard infection control practices; users must continue to follow all current infection control practices, including those related to the cleaning and disinfection of environmental surfaces.



UV PHANTOM
FLEXIBILITY IS KEY

- FLEXIBLE DEVICE POSITIONING TO FIT ANY ROOM CONFIGURATION
- FLEXIBLE AIRFLOW CONTROL WITH FULLY ADJUSTABLE DIFFUSERS
- FLEXIBLE FAN VELOCITY AND NOISE CONTROL

*MAXIMUM CFM VARIES WITH DUCT LENGTH, DUCT KINKS, FILTER CLEANLINESS AND OTHER FACTORS ADDING PRESSURE



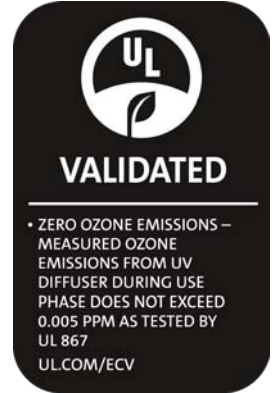
Safety

UV Diffusers certified UL in USA and Canada for safety in regards to electrical and UV irradiation hazards. UV-C light is contained within the diffuser in order to ensure room occupants' safety.

Interlock switches are also in place to ensure maintenance personnel's safety.

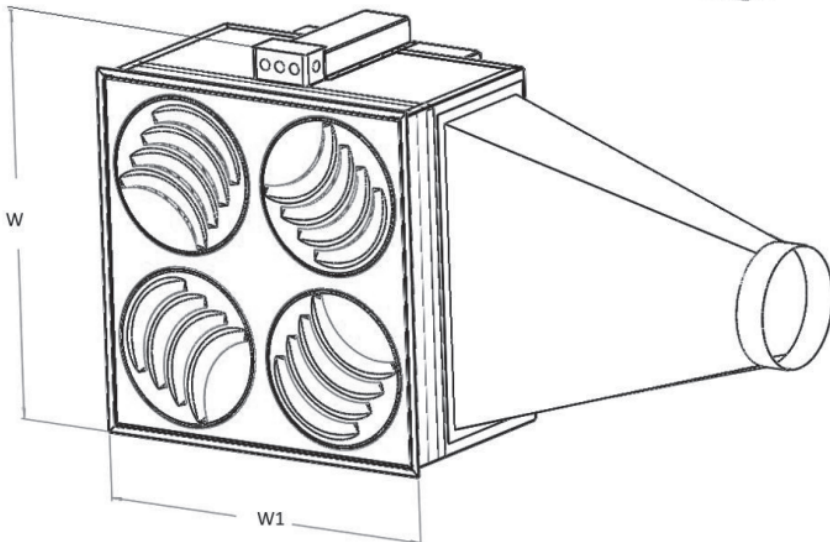
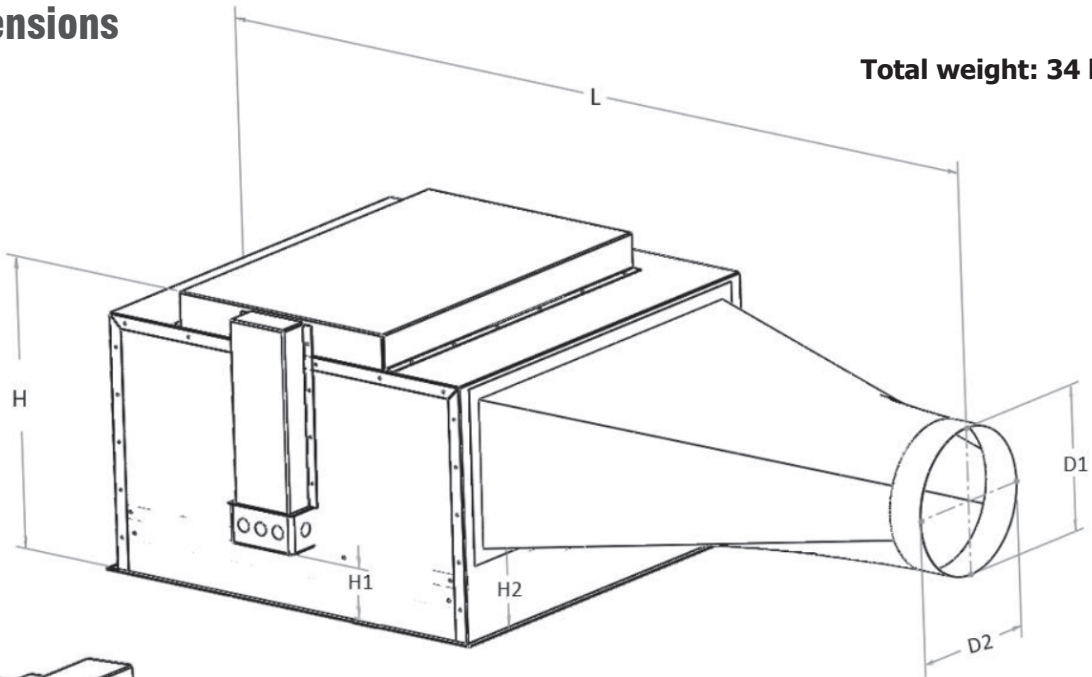
High quality lamps made of quartz do not emit any ozone nor other harmful particles. UV Diffusers are certified Zero Ozone Emission by UL

UV Diffusers are also certified by the California Air Resources Board



UV Diffuser Dimensions

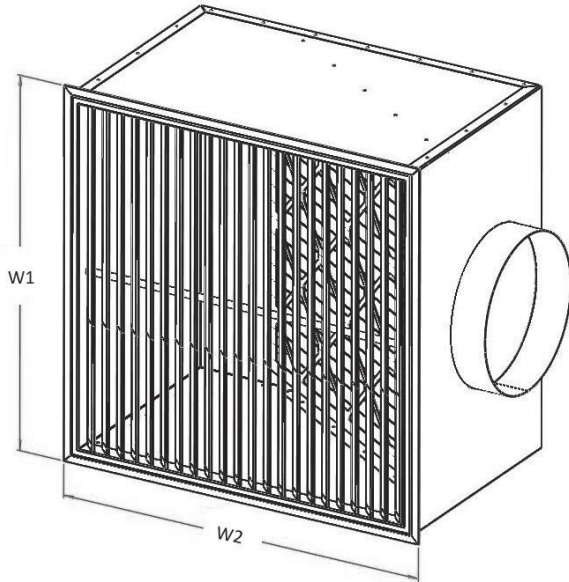
Total weight: 34 lbs



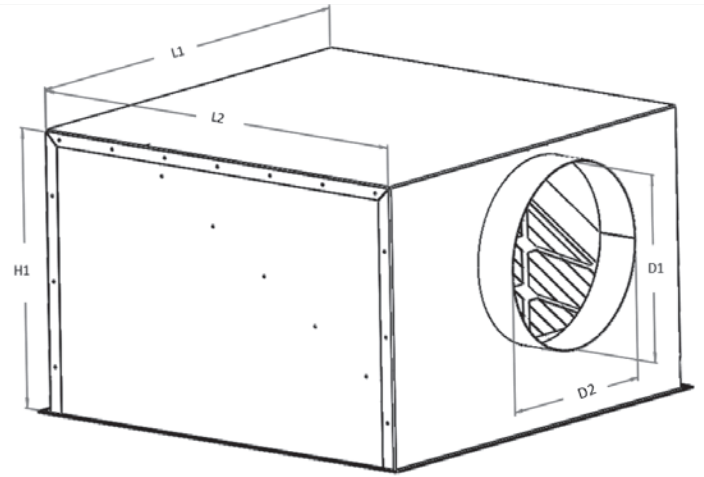
Dimensions	
W	25 2/3"
W1	23 7/8"
H	15 7/8"
H1	3 9/16"
H2	4 3/4"
L	47 1/2"

Duct Diameter	D1	D2
10"	11"	8"

FLYIN Architectural Filter Return Weight and Dimensions



Total weight: 26 lbs



Model	W1	W2	L1	L2	H1	D1	D2
FLYIN 2410	23" 7/8	23" 7/8	22" 7/8	22" 15/16	14" 7/8	9" 7/8	9" 7/8

Electrical Specifications

System Voltage	120 V / 240 V
Total System Max Wattage	206 W
Fan Maximum Wattage	126 W
Fan Certified Energy Star	Yes
UV Diffuser Wattage	40 W
Safety Switch - Diffuser Opened Face	Yes
Safety Switch - No UVC Barrier	Yes

UV Specifications

UV Output 253.7nm - 100hr (per lamp)	12.0 W
Intensity @ 1m (per lamp)	90 μW/cm ²
UVA	No
UVB	No
UVC	Yes
Ozone emission	No
Lamp Life Expectancy	17,000 hours
Lamp Diameter	T6 (19 mm)
Lamp Geometry	'J' Shape
Lamp Type	Quartz

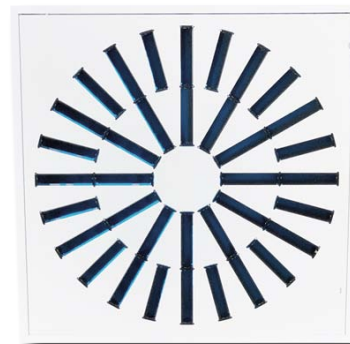
Filter Specifications

UVFILTER-W-M9 UV-Resistant 20" x 20" x 2" White MERV-9A Pleated Filter

UVFILTER-W-M9	
Minimum Efficiency Rating Value (AHRAE 52.2)	MERV 9 @ 1968 cfm
Initial Resistance @ 492 cfm	0.021 in.w.g
UL Certification	Yes



AXO-S-UV Airflow Performance Data



AXO-S-UV

Free Area (sqf)	CFM Min	CFM Max
0.48	230	500

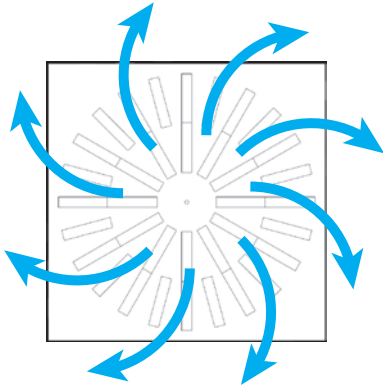
Neck Size (inches)	Neck (fpm) Velocity	300	400	500	600	700	800	1000	1200	1400
	Velocity Pressure (H2O)	0.006	.010	.016	.022	.031	.041	.062	.090	.122
6	CFM			98	118	137	157	196	236	275
	Pressure Loss (in.w.g.) - White Filter			0.01	0.014	0.018	0.023	0.035	0.05	0.067
	Pressure Loss (in.w.g.) - Carbon Filter			0.018	0.024	0.029	0.036	0.051	0.069	0.089
	NC			< 15	< 15	< 15	< 15	15	19	22
	Throw (ft) - Coanda Effect			1-2-4	2-3-4	2-3-5	2-4-6	3-5-7	4-6-9	4-7-10
	Throw (ft) - No Ceiling Effect			1-2-3	1-2-3	2-3-4	2-3-4	2-4-6	3-4-7	3-5-8
8	CFM	105	140	175	209	244	279	349	419	489
	Pressure Loss (in.w.g.) - White Filter	0.011	0.019	0.028	0.04	0.053	0.069	0.107	0.154	0.208
	Pressure Loss (in.w.g.) - Carbon Filter	0.02	0.03	0.043	0.056	0.073	0.091	0.134	0.185	0.244
	NC	< 15	< 15	< 15	16	20	22	27	31	35
	Throw (ft) - Coanda Effect	2-3-4	2-3-5	3-4-7	3-5-8	4-6-9	4-7-10	5-9-13	6-10-16	7-12-18
	Throw (ft) - No Ceiling Effect	1-2-3	2-3-4	2-3-5	2-4-6	3-5-7	3-5-8	4-7-10	5-8-12	6-9-14
10	CFM	164	218	273	327	382	436	545	654	
	Pressure Loss (in.w.g.) - White Filter	0.025	0.043	0.066	0.094	0.128	0.166	0.258	0.37	0.503
	Pressure Loss (in.w.g.) - Carbon Filter	0.038	0.06	0.088	0.12	0.157	0.198	0.297	0.415	0.554
	NC	< 15	17	22	26	28	32	37	40	
	Throw (ft) - Coanda Effect	3-4-6	3-5-8	4-7-10	5-8-12	6-10-14	7-11-16	8-14-21	10-16-25	
	Throw (ft) - No Ceiling Effect	2-3-5	2-4-6	3-5-8	4-6-9	4-7-11	5-8-12	6-10-15	7-12-19	
12	CFM	236	314	393	471	550	628			
	Pressure Loss (in.w.g.) - White Filter	0.05	0.087	0.135	0.193	0.263	0.341			
	Pressure Loss (in.w.g.) - Carbon Filter	0.069	0.111	0.165	0.228	0.302	0.385			
	NC	19	25	30	34	37	40			
	Throw (ft) - Coanda Effect	4-6-9	5-8-12	6-10-15	7-12-18	8-14-21	9-15-23			
	Throw (ft) - No Ceiling Effect	3-5-7	4-6-9	4-7-11	5-9-13	6-10-16	7-11-17			

Performance Notes

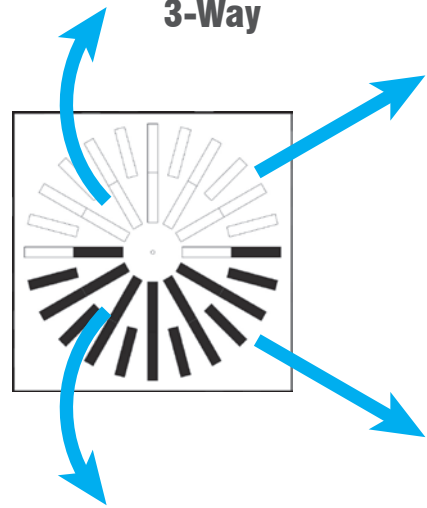
- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm**, respectively.
- Pressure Loss values represent the total pressure drop of the diffuser, plenum and filter assembled together.

AXO-S-UV Adjustment and Patterns

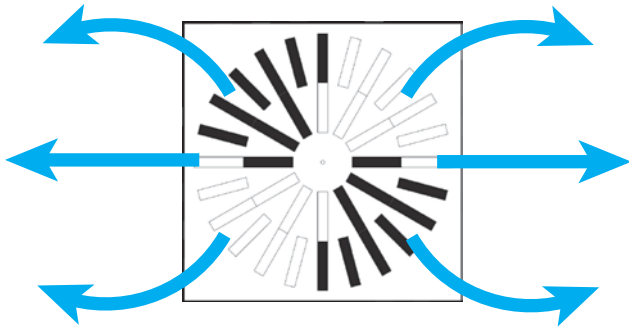
Swirl (standard)



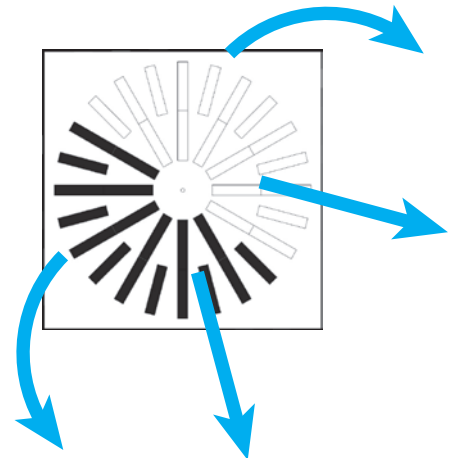
3-Way



2-Way Opposed



2-Way Corner



Throw Correction Factors - Airflow Adjustments - AXO-S-UV

Adjustment	Ka	$Throw' = Ka \times Throw$
1-Way	1.4	
2-Way	1.2	
3-Way	1.1	

Airflow Performance Data



Swirl

Dim	Free Area (sqf)	Min cfm	Max cfm
24"x24" (610mm)	0.43	125	400

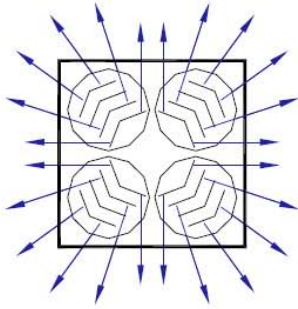
PLAY-UV Performance Data - Swirl Diffusion

Duct Dia (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041	.062
6	CFM				98	118	137	157	196
	Pressure Loss (in.w.g.) - White Filter				0.014	0.019	0.025	0.032	0.048
	Pressure Loss (in.w.g.) - Carbon Filter				0.022	0.029	0.036	0.045	0.064
	NC				< 15	< 15	< 15	< 15	16
	Throw (ft) - Coanda Effect				2-2-4	2-3-4	2-3-5	2-4-6	3-5-7
	Throw (ft) - No Ceiling				1-2-3	1-2-3	2-3-4	2-3-4	2-4-5
8	CFM		105	140	175	209	244	279	349
	Pressure Loss (in.w.g.) - White Filter		0.016	0.026	0.039	0.054	0.072	0.092	0.140
	Pressure Loss (in.w.g.) - Carbon Filter		0.025	0.038	0.053	0.071	0.091	0.114	0.167
	NC		< 15	< 15	< 15	18	22	25	31
	Throw (ft) - Coanda Effect		2-3-4	2-3-5	3-4-6	3-5-7	3-6-9	4-6-10	5-8-12
	Throw (ft) - No Ceiling		1-2-3	2-3-4	2-3-5	2-4-6	3-4-6	3-5-7	4-6-9
10	CFM	109	164	218	273	327	382	436	545
	Pressure Loss (in.w.g.) - White Filter	0.017	0.034	0.058	0.088	0.124	0.167	0.215	0.330
	Pressure Loss (in.w.g.) - Carbon Filter	0.026	0.047	0.076	0.110	0.149	0.196	0.247	0.369
	NC	< 15	< 15	19	25	30	34	37	43
	Throw (ft) - Coanda Effect	2-3-4	2-4-6	3-5-8	4-6-10	4-8-11	5-9-13	6-10-15	9-16-24
	Throw (ft) - No Ceiling	1-2-3	2-3-4	2-4-6	3-5-7	3-6-8	4-6-10	4-7-11	7-12-18
12	CFM	157	236	314	393	471	550		
	Pressure Loss (in.w.g.) - White Filter	0.032	0.067	0.115	0.176	0.249	0.336		
	Pressure Loss (in.w.g.) - Carbon Filter	0.045	0.086	0.139	0.206	0.284	0.375		
	NC	< 15	21	29	35	39	44		
	Throw (ft) - Coanda Effect	2-4-6	3-6-8	4-7-11	5-9-13	6-10-16	7-12-18		
	Throw (ft) - No Ceiling	2-3-4	3-4-6	3-5-8	4-7-10	5-8-12	5-9-14		

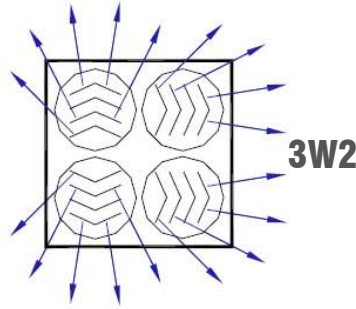
Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm**, respectively.
- Pressure Loss values represent the total pressure drop of the diffuser, plenum and filter assembled together.

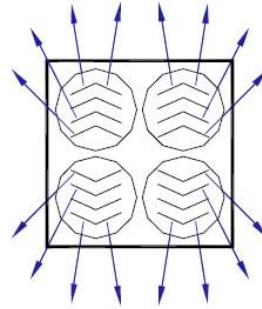
PLAY-UV Directional Airflow Configurations



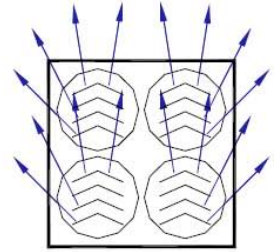
4-Way



3-Way



2-Way



1-Way

Duct Dia (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041	.062
6	CFM			79	98	118	137	157	196
	Pressure Loss (in.w.g.) - White Filter			0.010	0.014	0.019	0.025	0.032	0.048
	Pressure Loss (in.w.g.) - Carbon Filter			0.007	0.022	0.029	0.036	0.045	0.064
	NC			< 15	< 15	< 15	< 15	< 15	16
	Throw (ft)	4W, 3W			2-3-4	2-4-5	2-4-6	3-5-7	3-6-8
3W2, 2W				3-6-10	4-7-11	4-8-12	5-9-14	6-11-16	7-13-19
1W				5-9-13	6-10-13	6-11-16	7-12-18	8-14-21	10-17-25
8	CFM	70	105	140	175	209	244	279	349
	Pressure Loss (in.w.g.) - White Filter	0.008	0.016	0.026	0.039	0.054	0.072	0.092	0.140
	Pressure Loss (in.w.g.) - Carbon Filter	0.014	0.025	0.038	0.053	0.071	0.091	0.114	0.167
	NC	< 15	< 15	< 15	< 15	18	22	25	31
	Throw (ft)	4W, 3W	2-3-4	2-4-5	3-5-7	3-6-9	4-7-10	5-8-12	5-8-13
3W2, 2W		3-6-10	4-7-11	5-9-14	7-12-18	8-14-21	9-16-24	10-17-26	13-22-34
1W		5-9-12	6-10-14	7-12-18	9-16-24	11-18-27	12-20-30	13-22-33	17-28-42
10	CFM	109	164	218	273	327	382	436	545
	Pressure Loss (in.w.g.) - White Filter	0.017	0.034	0.058	0.088	0.124	0.167	0.215	0.330
	Pressure Loss (in.w.g.) - Carbon Filter	0.026	0.047	0.076	0.110	0.149	0.196	0.247	0.369
	NC	< 15	< 15	17	23	28	32	36	42
	Throw (ft)	4W, 3W	2-4-5	3-5-8	4-7-10	5-8-13	6-10-15	7-11-17	8-13-19
3W2, 2W		4-7-11	6-11-16	8-14-21	10-17-26	12-20-32	14-23-35	16-26-39	19-32-48
1W		6-10-14	8-14-21	11-18-27	13-22-33	16-26-39	18-30-45	20-34-51	25-42-63
12	CFM	157	236	314	393	471	550		
	Pressure Loss (in.w.g.) - White Filter	0.032	0.067	0.115	0.176	0.249	0.336		
	Pressure Loss (in.w.g.) - Carbon Filter	0.045	0.086	0.139	0.206	0.284	0.375		
	NC	< 15	21	28	34	39	43		
	Throw (ft)	4W, 3W	4-6-9	5-8-12	6-9-14	7-12-18	9-15-22	9-16-24	
3W2, 2W		7-13-19	9-16-24	11-19-29	15-24-37	18-29-44	19-32-48		
1W		10-16-24	12-20-30	15-24-36	19-32-48	23-38-57	25-42-63		

Performance Notes

- NC Value based on 10 db room attenuation.
- Throw Values are based on isothermal air and terminal velocities of **100 fpm, 60 fpm and 40 fpm**, respectively.
- Pressure Loss values represent the total pressure drop of the diffuser, plenum and filter assembled together.

Single-Pass Germicidal Irradiation Performance - 100-300 CFM (1/2)

Bio-contaminants	100 cfm	150 cfm	200 cfm	250 cfm	300 cfm
Mycobacterium tuberculosis	>99.9999%	>99.9999%	>99.9999%	>99.9999%	>99.9999%
Legionella pneumophila	>99.9999%	>99.9999%	>99.9999%	>99.9999%	>99.9999%
Candida auris	>99.9999%	>99.9999%	>99.9999%	>99.9999%	>99.9999%
SARS-CoV-1	>99.9999%	>99.9999%	>99.9999%	>99.9999%	99.9999%
Proteus mirabilis	>99.9999%	>99.9999%	>99.9999%	99.9996%	99.9967%
Mycoplasma pneumoniae	>99.9999%	>99.9999%	>99.9999%	99.9994%	99.9952%
Listeria monocytogenes	>99.9999%	>99.9999%	99.9996%	99.9948%	99.9729%
Salmonella	>99.9999%	>99.9999%	99.9993%	99.9922%	99.9623%
Aeromonas	>99.9999%	>99.9999%	99.9981%	99.9832%	99.9285%
SARS-CoV-2	>99.9999%	99.9998%	99.9955%	99.9666%	99.8731%
Rickettsia prowazekii	>99.9999%	99.9996%	99.9919%	99.9465%	99.8122%
Staphylococcus epidermis	>99.9999%	99.9990%	99.9829%	99.9030%	99.6916%
E. Coli	>99.9999%	99.9985%	99.9764%	99.8746%	99.6182%
Yersinia enterocolitica	>99.9999%	99.9982%	99.9729%	99.8599%	99.5811%
Coxiella burnetii	>99.9999%	99.9982%	99.9729%	99.8598%	99.5809%
Lactobacillus reuteri	>99.9999%	99.9982%	99.9729%	99.8598%	99.5809%
Vaccinia virus	>99.9999%	99.9982%	99.9721%	99.8568%	99.5734%
Smallpox	>99.9999%	99.9982%	99.9718%	99.8555%	99.5703%
Newcastle disease	>99.9999%	99.9965%	99.9549%	99.7894%	99.4119%
Acinetobacter baumannii	99.9999%	99.9892%	99.8938%	99.5824%	98.9594%
Influenza A virus	99.9997%	99.9794%	99.8282%	99.3862%	98.5655%
MRSA	99.9994%	99.9684%	99.7632%	99.2064%	98.2232%
Coxsackievirus	99.9993%	99.9636%	99.7364%	99.1355%	98.0918%
Avian Influenza virus	99.9988%	99.9480%	99.6556%	98.9292%	97.7193%
Measle virus	99.9987%	99.9445%	99.6386%	98.8872%	97.6449%
Pseudomonas aeruginosa	99.9986%	99.9429%	99.6307%	98.8680%	97.6110%
Serratia marcescens	99.9962%	99.8860%	99.3796%	98.2854%	96.6235%
Parvovirus H-1	99.9947%	99.8588%	99.2715%	98.0505%	96.2422%
Proteus vulgaris/mirabilis	99.9729%	99.5809%	98.3529%	96.2556%	93.5263%
Corynebacterium diphtheriae	99.9447%	99.3265%	97.6490%	95.0227%	91.7934%
Ustilago zeae	99.9124%	99.0848%	97.0409%	94.0170%	90.4332%
Streptococcus pyogenes	99.8629%	98.7659%	96.2974%	92.8418%	88.8911%
Haemophilus influenza	99.8354%	98.6058%	95.9427%	92.2982%	88.1925%
Yeast	99.7885%	98.3526%	95.4016%	91.4869%	87.1647%
Klebsiella pneumoniae	99.7159%	97.9941%	94.6699%	90.4195%	85.8369%
Neisseria catarrhalis/meningitidis	99.6300%	97.6076%	93.9169%	89.3512%	84.5326%
Clostridium tetani	99.3448%	96.4984%	91.9053%	86.6168%	81.2875%
Vancomycin Resistant Enterococcus	98.8704%	94.9656%	89.3717%	83.3593%	77.5624%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filters has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Single-Pass Germicidal Irradiation Performance - 100-300 CFM (2/2)

Bio-contaminants	100 cfm	150 cfm	200 cfm	250 cfm	300 cfm
Burkholderia cenocepacia	98.5490%	94.0510%	87.9543%	81.6064%	75.6094%
Adenovirus	98.4594%	93.8085%	87.5879%	81.1602%	75.1174%
Enterobacter cloacae	97.8717%	92.3202%	85.4114%	78.5607%	72.2875%
Reovirus	97.2486%	90.8861%	83.4127%	76.2414%	69.8108%
Norwalk virus	96.1334%	88.5655%	80.3364%	72.7773%	66.1850%
Echovirus	90.3990%	79.0326%	69.0145%	60.8324%	54.2098%
Bacillus Anthacis	83.2521%	69.6164%	59.0759%	51.0690%	44.8787%
Cryptococcus neoformans	83.2521%	69.6164%	59.0759%	51.0690%	44.8787%
Blastomyces dermatidis	82.7981%	69.0697%	58.5248%	50.5427%	44.3850%
Histoplasma capsulatum	82.7981%	69.0697%	58.5248%	50.5427%	44.3850%
Mucor spores	82.7981%	69.0697%	58.5248%	50.5427%	44.3850%
Bacillus subtilis spores	80.9576%	66.9010%	56.3624%	48.4903%	42.4683%
Francisella Tularensis	79.3443%	65.0570%	54.5515%	46.7872%	40.8874%
Fusarium oxysporum	78.1157%	63.6848%	53.2193%	45.5431%	39.7379%
Botrytis cinerea	62.6337%	48.1215%	38.8720%	32.5484%	27.9733%
Rhizopus nigricans	60.1987%	45.8916%	36.9117%	30.8234%	26.4416%
Nocardia asteroides	58.5026%	44.3651%	35.5815%	29.6590%	25.4112%
Penicillium digitatum	53.6181%	40.0808%	31.8957%	26.4573%	22.5925%
Bacillus Cereus spores	45.3095%	33.1233%	26.0470%	21.4466%	18.2218%
Algae blue-green	42.1803%	30.5961%	23.9607%	19.6788%	16.6910%
Streptococcus Pneumoniae	40.9296%	29.5988%	23.1427%	18.9883%	16.0946%
Penicillium chrysogenum	37.1475%	26.6250%	20.7205%	16.9520%	14.3408%
Trichophyton rubrum	35.5815%	25.4112%	19.7389%	16.1305%	13.6352%
Candida albicans	35.3052%	25.1981%	19.5669%	15.9868%	13.5119%
Mucor mucedo	34.7491%	24.7700%	19.2220%	15.6986%	13.2648%
Clostridium Difficile spores	33.7359%	23.9932%	18.5972%	15.1775%	12.8181%
Cladosporium herbarum	32.6926%	23.1975%	17.9589%	14.6458%	12.3630%
Scopulariopsis brevicaulis	30.7938%	21.7598%	16.8097%	13.6906%	11.5465%
Bacillus Anthacis spores	28.2297%	19.8390%	15.2827%	12.4255%	10.4673%
Aspergillus fumigatus spores	10.4354%	7.0839%	5.3614%	4.3126%	3.6070%
Aspergillus niger spores	7.2164%	4.8707%	3.6757%	2.9516%	2.4658%
Cladosporium wemecki	5.3108%	3.5726%	2.6916%	2.1591%	1.8026%
stachybotrys chartarum	4.2922%	2.8823%	2.1696%	1.7395%	1.4517%
Myxobolus cerebralis	2.4310%	1.6273%	1.2230%	0.9796%	0.8170%
Moraxella	2.3265%	1.5571%	1.1701%	0.9372%	0.7816%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filters has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Single-Pass Germicidal Irradiation Performance - 350-500 CFM (1/2)

Bio-contaminants	350 cfm	400 cfm	450 cfm	500 cfm
Mycobacterium tuberculosis	>99.9999%	99.9997%	99.9987%	99.9959%
Legionella pneumophila	99.9999%	99.9993%	99.9975%	99.9929%
Candida auris	99.9999%	99.9994%	99.9976%	99.9930%
SARS-CoV-1	99.9990%	99.9958%	99.9872%	99.9687%
Proteus mirabilis	99.9854%	99.9561%	99.8963%	99.7939%
Mycoplasma pneumoniae	99.9803%	99.9428%	99.8688%	99.7453%
Listeria monocytogenes	99.9124%	99.7889%	99.5814%	99.2762%
Salmonella	99.8836%	99.7293%	99.4778%	99.1168%
Aeromonas	99.7989%	99.5630%	99.2008%	98.7046%
SARS-CoV-2	99.6710%	99.3277%	98.8280%	98.1717%
Rickettsia prowazekii	99.5395%	99.0977%	98.4776%	97.6865%
Staphylococcus epidermis	99.2956%	98.6914%	97.8813%	96.8850%
E. Coli	99.1541%	98.4639%	97.5570%	96.4590%
Yersinia enterocolitica	99.0841%	98.3533%	97.4012%	96.2564%
Coxiella burnetii	99.0838%	98.3529%	97.4006%	96.2556%
Lactobacillus reuteri	99.0838%	98.3529%	97.4006%	96.2556%
Vaccinia virus	99.0697%	98.3307%	97.3695%	96.2153%
Smallpox	99.0640%	98.3217%	97.3570%	96.1991%
Newcastle disease	98.7751%	97.8763%	96.7418%	95.4114%
Acinetobacter baumannii	98.0022%	96.7418%	95.2335%	93.5378%
Influenza A virus	97.3695%	95.8549%	94.0961%	92.1652%
MRSA	96.8399%	95.1333%	93.1908%	91.0918%
Coxsackievirus	96.6407%	94.8658%	92.8591%	90.7023%
Avian Influenza virus	96.0858%	94.1311%	91.9576%	89.6522%
Measle virus	95.9767%	93.9881%	91.7837%	89.4510%
Pseudomonas aeruginosa	95.9272%	93.9234%	91.7051%	89.3603%
Serratia marcescens	94.5212%	92.1232%	89.5534%	86.9058%
Parvovirus H-1	93.9950%	91.4650%	88.7809%	86.0376%
Proteus vulgaris/mirabilis	90.4283%	87.1659%	83.8773%	80.6495%
Corynebacterium diptheriae	88.2704%	84.6672%	81.1154%	77.6901%
Ustilago zeae	86.6226%	82.7981%	79.0824%	75.5397%
Streptococcus pyogenes	84.7944%	80.7579%	76.8910%	73.2451%
Haemophilus influenza	83.9783%	79.8572%	75.9320%	72.2479%
Yeast	82.7902%	78.5561%	74.5549%	70.8228%
Klebsiella pneumoniae	81.2751%	76.9130%	72.8291%	69.0476%
Neisseria catarrhalis/meningitidis	79.8064%	75.3360%	71.1855%	67.3675%
Clostridium tetani	76.2254%	71.5489%	67.2844%	63.4170%
Vancomycin Resistant Enterococcus	72.2225%	67.3989%	63.0753%	59.2070%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filters has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Single-Pass Germicidal Irradiation Performance - 350-500 CFM (2/2)

Bio-contaminants	350 cfm	400 cfm	450 cfm	500 cfm
Burkholderia cenocepacia	70.1625%	65.2930%	60.9626%	57.1123%
Adenovirus	69.6473%	64.7692%	60.4393%	56.5952%
Enterobacter cloacae	66.7116%	61.8050%	57.4940%	53.6974%
Reovirus	64.1773%	59.2724%	54.9978%	51.2572%
Norwalk virus	60.5198%	55.6563%	51.4630%	47.8246%
Echovirus	48.8043%	44.3354%	40.5915%	37.4160%
Bacillus Anthacis	39.9830%	36.0280%	32.7726%	30.0493%
Cryptococcus neoformans	39.9830%	36.0280%	32.7726%	30.0493%
Blastomyces dermatidis	39.5226%	35.5988%	32.3718%	29.6741%
Histoplasma capsulatum	39.5226%	35.5988%	32.3718%	29.6741%
Mucor spores	39.5226%	35.5988%	32.3718%	29.6741%
Bacillus subtilis spores	37.7404%	33.9412%	30.8267%	28.2297%
Francisella Tularensis	36.2769%	32.5845%	29.5653%	27.0529%
Fusarium oxysporum	35.2162%	31.6036%	28.6551%	26.2051%
Botrytis cinerea	24.5166%	21.8156%	19.6482%	17.8711%
Rhizopus nigricans	23.1427%	20.5719%	18.5130%	16.8275%
Nocardia asteroides	22.2209%	19.7389%	17.7538%	16.1305%
Penicillium digitatum	19.7082%	17.4747%	15.6946%	14.2430%
Bacillus Cereus spores	15.8377%	14.0041%	12.5503%	11.3697%
Algae blue-green	14.4890%	12.7995%	11.4623%	10.3779%
Streptococcus Pneumoniae	13.9646%	12.3317%	11.0403%	9.9935%
Penicillium chrysogenum	12.4255%	10.9609%	9.8049%	8.8694%
Trichophyton rubrum	11.8075%	10.4114%	9.3103%	8.4197%
Candida albicans	11.6996%	10.3155%	9.2240%	8.3413%
Mucor mucedo	11.4834%	10.1234%	9.0512%	8.1842%
Clostridium Difficile spores	11.0929%	9.7765%	8.7392%	7.9008%
Cladosporium herbarum	10.6951%	9.4235%	8.4219%	7.6126%
Scopulariopsis brevicaulis	9.9825%	8.7913%	7.8540%	7.0972%
Bacillus Anthacis spores	9.0419%	7.9580%	7.1060%	6.4187%
Aspergillus fumigatus spores	3.0998%	2.7176%	2.4194%	2.1801%
Aspergillus niger spores	2.1173%	1.8551%	1.6507%	1.4868%
Cladosporium wemecki	1.5471%	1.3550%	1.2053%	1.0855%
stachybotrys chartarum	1.2456%	1.0908%	0.9702%	0.8736%
Myxobolus cerebralis	0.7007%	0.6134%	0.5454%	0.4910%
Moraxella	0.6703%	0.5868%	0.5217%	0.4697%

Percentages on this table represent the minimum expected microbial deactivation for single-pass air treatment using UV-C germicidal irradiation only. The additional contribution of the air filters has not been considered.

Sanuvox, a company specialized in UV-C technologies, calculated these values using the lamp's lowest efficiency, at the end of its 2-year lifespan.

Maintenance Schedule

Filter Replacement: every 3 to 6 months depending on the ventilation system's filtration quality and cleanliness of the duct line.

UV Lamp Replacement: every 2 years or 17,000 hours.

How to Specify UV-PHANTOM

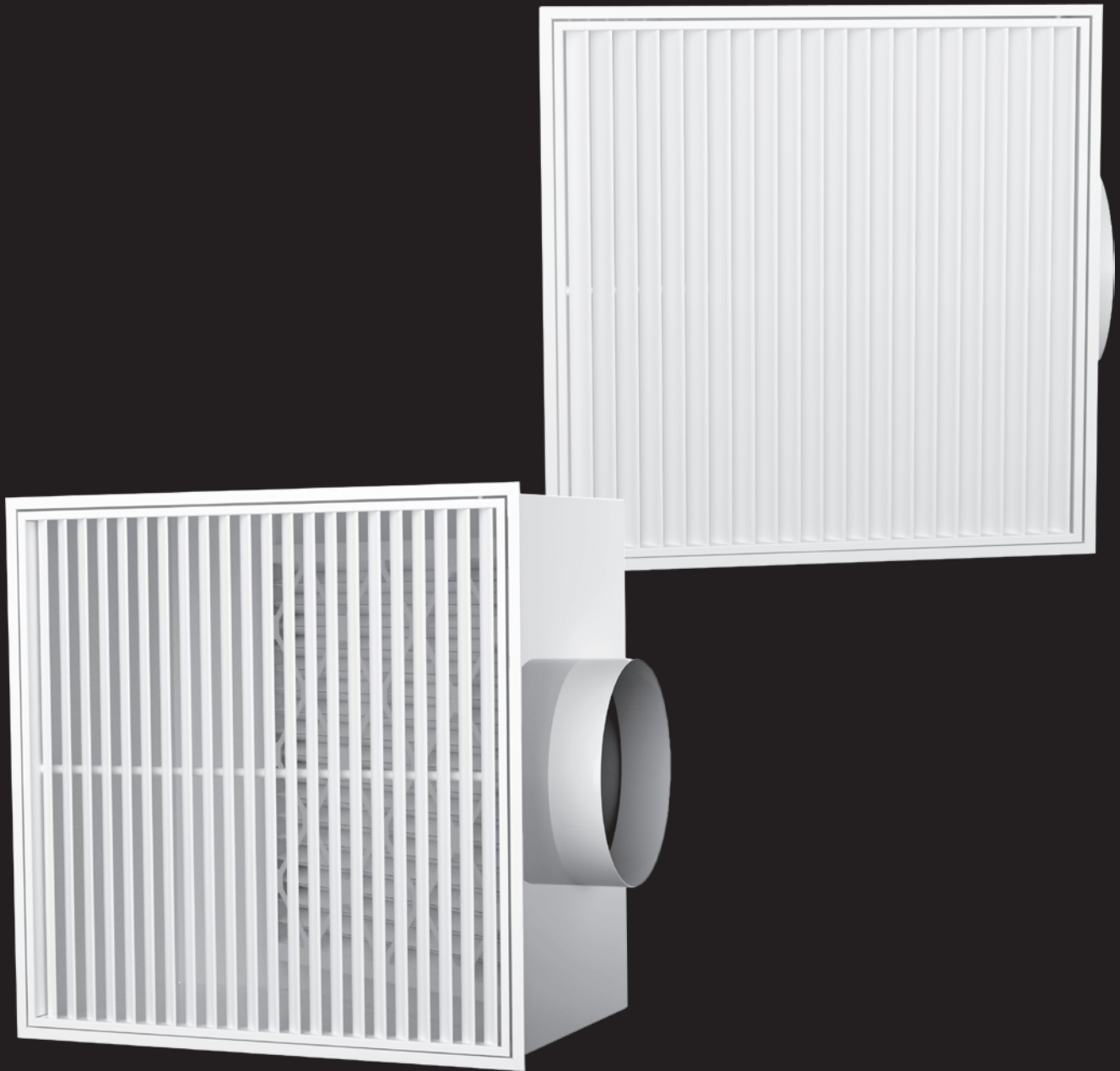
Supply and mounting of independent ceiling mounted air purification system UV PHANTOM. With two AXO-S-UV or PLAY-UV diffusers UL certified for Safety and Zero Ozone Emissions, one FLYIN architectural filter return grille, one silenced EC fan certified Energy Star, two duct silencers and all the necessary ducts and fittings. UV Diffusers and Filter Return must have hinged and removable face to allow easy access to filters and UV Lamps from the room. Visible products are constructed from galvanized steel face panel powder coated in white M9016. All products must have earthquake tabs to secure the product to the building structure. UV Diffusers' SARS-CoV-2 single-pass germicidal irradiation performance greater than 99.9% at 458 cfm must have been demonstrated by triple redundancy tests with two control points conducted by a 3rd party laboratory with the real virus. By EffectiV HVAC Inc.

UV PHANTOM

UVdiffusers.com/UV-Phantom



AIR RETURNS












YIN / FLYIN
Architectural Ceiling Returns

EFFECTIV  TM

YIN/FLYIN SERIES

Architectural Ceiling Returns

-  Duct connection is completely invisible
-  FLYIN includes a very discreet filter, invisible from most angles
-  Available with inside color matching face, or with a different RAL color
-  Easy to use and secure removable hinged face with magnetic locks
-  Available with R6 thermal insulation
-  Works with all types of ceilings
-  Heavy-gauge steel and aluminum construction



YIN

Imperial Dim	Metric Dim	Free Area (sqf)	Max cfm
24" x 24"	610 x 610 mm	2.357	1800

YIN and FLYIN Architectural Ceiling Returns combine discretion and efficiency in order to answer the needs of both architects and engineers.

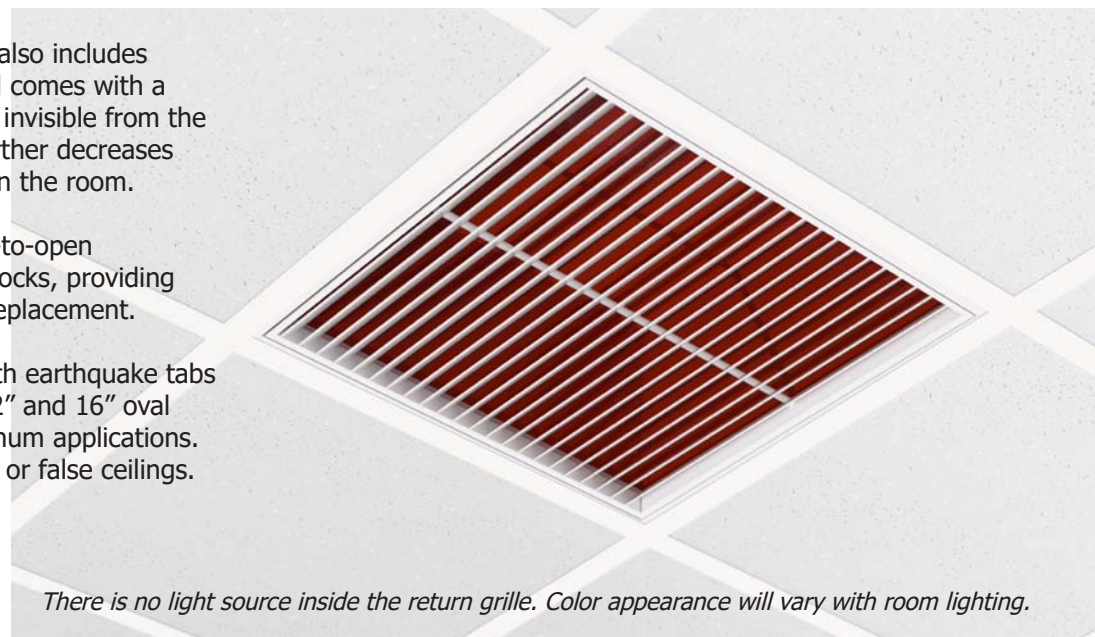
In order to exhaust the air effectively and quietly, ceiling returns must be designed with the largest unobstructed opening possible. This, however, comes with the unappealing result of seeing the rigid metal or flexible duct connection behind the face.

The YIN and FLYIN Architectural Ceiling Returns solve the appearance problem without compromising on efficiency. Powder coated with either the same or different color for the face and on the inside, both architectural returns use a 45-degree angled blades return grille face. This angled blade feature allows visibility to the painted wall opposite to the duct connection. The result is a discreet look hiding the duct from every visible angle and a return grille that blends in with its environment. YIN and FLYIN Architectural Returns can either blend discreetly with the ceiling when using the standard white-on-white finish, or add depth to the ceiling with a white face and an interior color matching a dominant color in the room.

FLYIN Architectural Filter Return Grille also includes a support for 20" x 20" x 2" filters, and comes with a MERV-9 filter. Although not completely invisible from the face, the filter is set in a way which further decreases the angles from where it can be seen in the room.

Both products have a secure and easy-to-open removable hinged face with magnetic locks, providing easy access for cleaning and/or filter replacement.

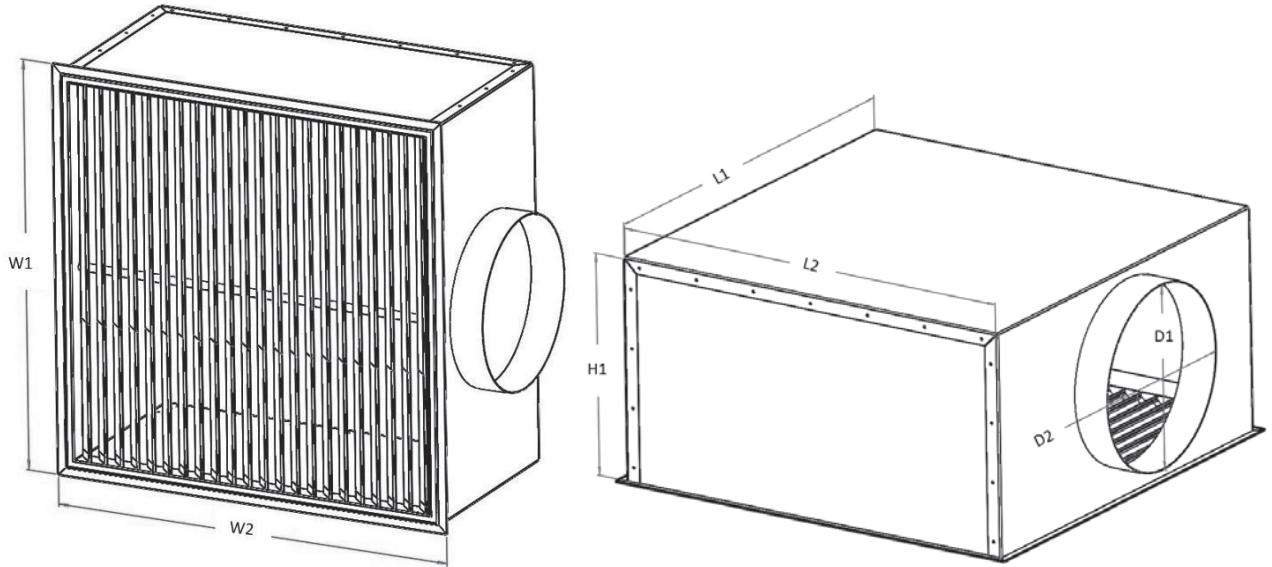
YIN and FLYIN both come standard with earthquake tabs and are available with 10" round, or 12" and 16" oval collars, or without collar for ceiling plenum applications. They are compatible with open, closed or false ceilings.



There is no light source inside the return grille. Color appearance will vary with room lighting.

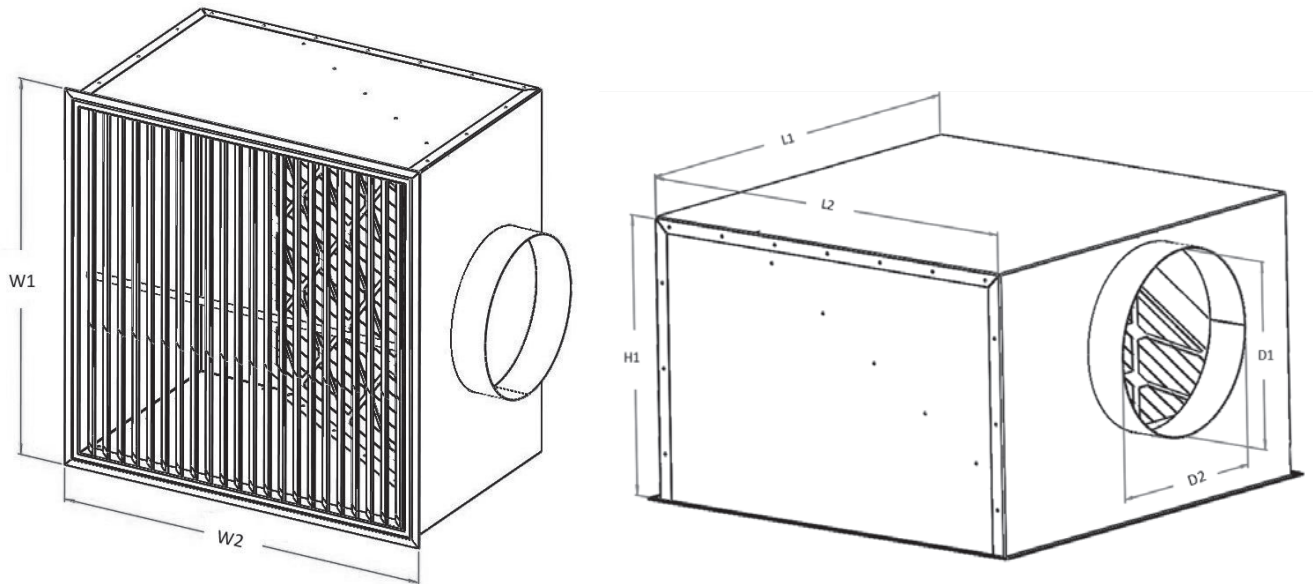
Dimensions - Ducted Returns

YIN



Model	W1	W2	L1	L2	H1	D1	D2
YIN 2410	23" 7/8	23" 7/8	22" 7/8	22" 15/16	11" 7/8	9" 7/8	9" 7/8
YIN 2412	23" 7/8	23" 7/8	22" 7/8	22" 15/16	11" 7/8	7" 7/8	15" 7/8
YIN 2416	23" 7/8	23" 7/8	22" 7/8	22" 15/16	11" 7/8	9" 7/8	21" 7/8

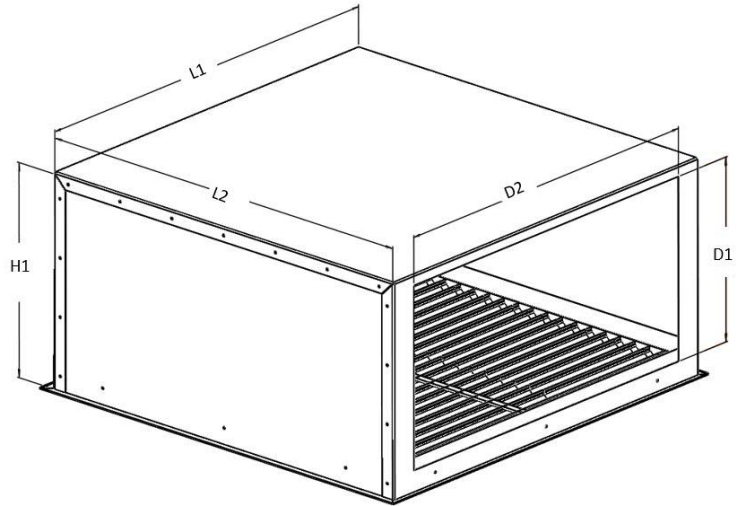
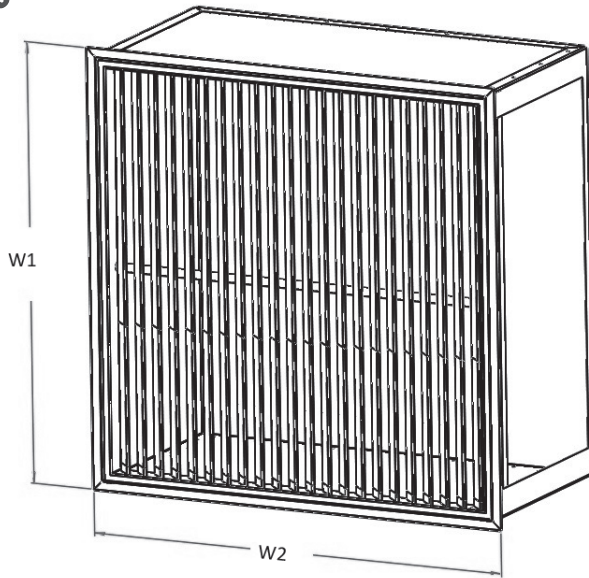
FLYIN



Model	W1	W2	L1	L2	H1	D1	D2
FLYIN 2410	23" 7/8	23" 7/8	22" 7/8	22" 15/16	14" 7/8	9" 7/8	9" 7/8
FLYIN 2412	23" 7/8	23" 7/8	22" 7/8	22" 15/16	14" 7/8	7" 7/8	15" 7/8
FLYIN 2416	23" 7/8	23" 7/8	22" 7/8	22" 15/16	14" 7/8	9" 7/8	21" 7/8

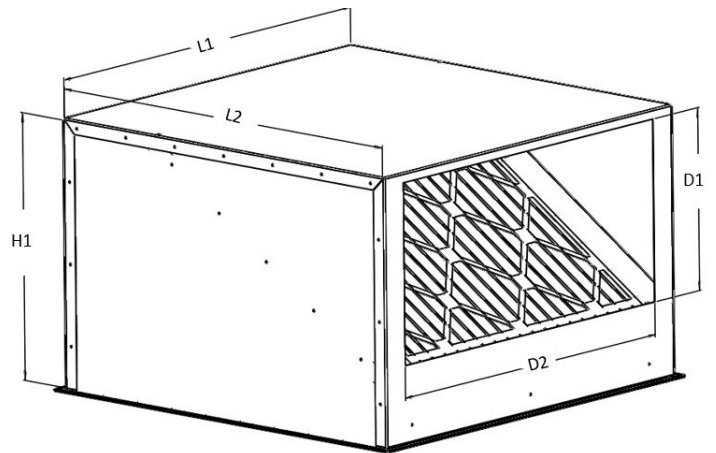
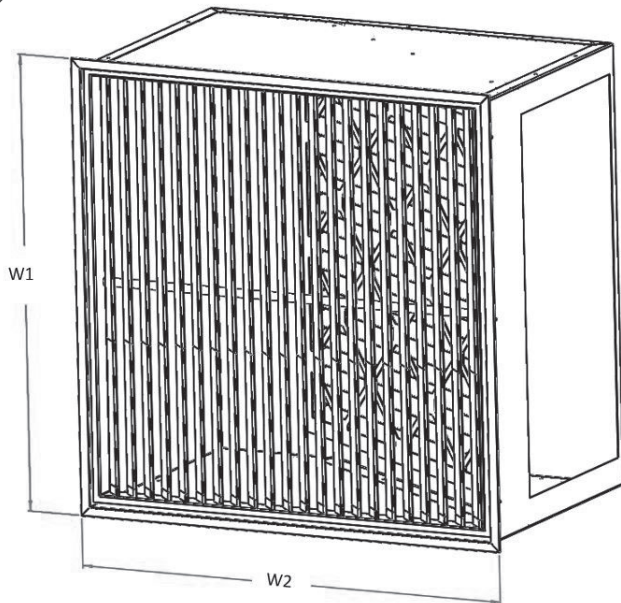
Dimensions - Non Ducted Returns for Ceiling Plenum

YIN 2400



Model	W1	W2	L1	L2	H1	D1	D2
YIN 2400	23" 7/8	23" 7/8	22" 7/8	22" 15/16	11" 7/8	10"	20"

FLYIN 2400



Model	W1	W2	L1	L2	H1	D1	D2
FLYIN 2400	23" 7/8	23" 7/8	22" 7/8	22" 15/16	14" 7/8	10"	20"

YIN Performance Data

CFM	300	400	500	600	800	1000	1200	1400	1600	1800
NC	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 20	< 20	< 25
Pressure Loss (in.w.g.)	0.002	0.003	0.004	0.006	0.01	0.015	0.021	0.03	0.037	0.045

Performance Notes

- NC Value based on 10 db room attenuation.

FLYIN Performance Data

For FLYIN use the same performance data as YIN and add filter pressure drop.

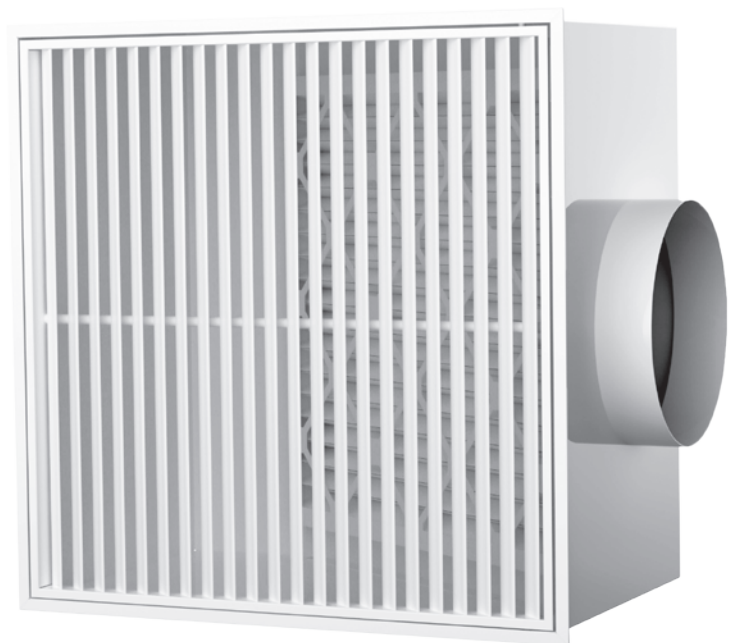
Below is the initial pressure drop table for EffectiV HVAC's standard MERV-9 filter, also used in UV Diffusers. Filters from other manufacturers will have different performance, please use your filter manufacturer's performance data.

CFM	492	984	1476	1968
Initial Pressure Loss (in.w.g.)	0.021	0.063	0.125	0.208

The Pressure Drop vs. Dust Fed table below indicates EffectiV HVAC's MERV-9 filter capacity to perform while retaining dust.

Dust Fed (g)	0	135.3	178.3	204.5	217.2
Pressure Loss (in.w.g.) @ 1968 cfm	0.208	0.531	0.854	1.177	1.500

Final Resistance at 1968 cfm = 1.5 **in.w.g.**



FLYIN

How to Specify YIN

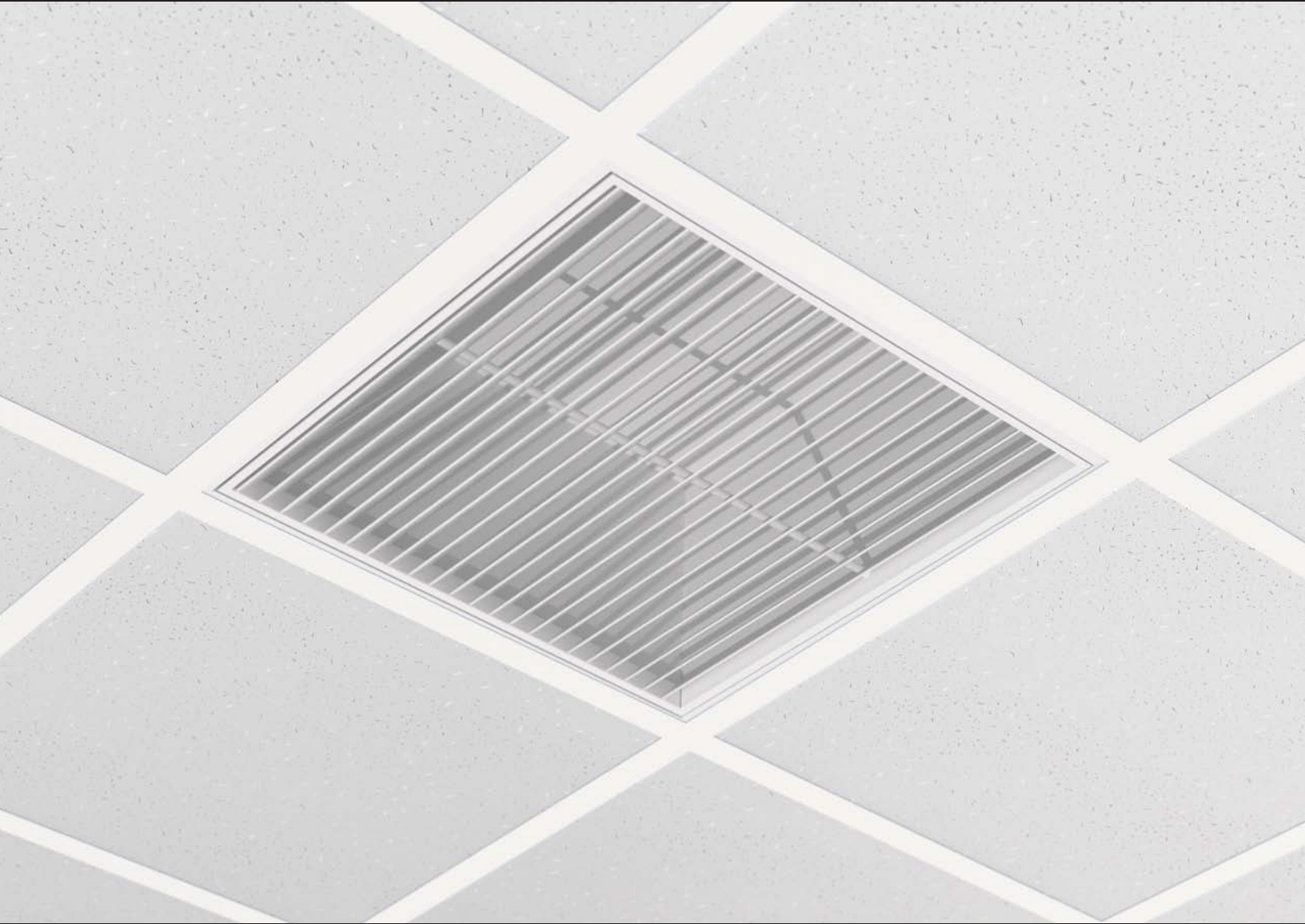
Supply and mounting of YIN Architectural Ceiling Return. Dimension 24x24 inches. Constructed from galvanized steel plenum and aluminum 45-degree blades return grille face. The hinged face is removable and secured by magnetic locks. The side duct connection is completely hidden and invisible from the face. Powder coated with the same or different color on the inside and on the outside. Plenum must have earthquake tabs to secure the product to the building structure. By EffectiV HVAC Inc.

How to Specify FLYIN

Supply and mounting of FLYIN Architectural Ceiling Filter Return. Dimension 24x24 inches. Constructed from galvanized steel plenum and aluminum 45-degree blades return grille face. The hinged face is removable and secured by magnetic locks. The side duct connection is completely hidden and invisible from the face. The 2" filter is secured by 4 spring clips and positioned in a way to minimize its visibility from the face. Powder coated with the same or different color on the inside and on the outside. Plenum must have earthquake tabs to secure the product to the building structure. Shall be supplied 2" MERV-9 filter. By EffectiV HVAC Inc.

How to Order YIN/FLYIN Series

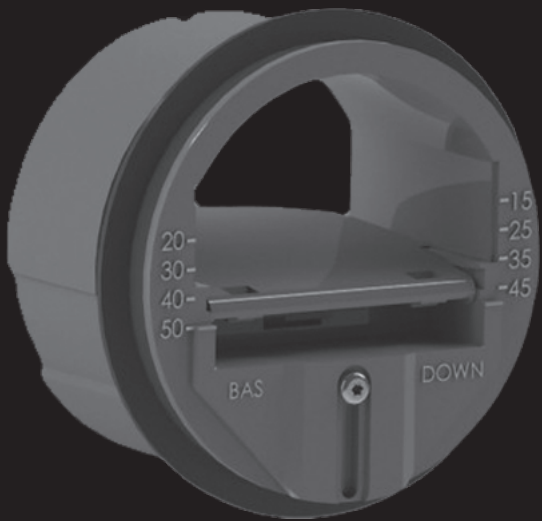
FLYIN	-IR6	-IW	2410	/M9016	
				Face Color	M9016 Face in standard white M9016
					RAL Face in custom RAL color
			Dimension	2400	20" x 10" rectangular opening, no collar
				2410	10" round collar
				2412	12" oval collar
				2416	16" oval collar
		Interior Color		IW	Interior in standard white M9016
				IRxxxx	Interior in custom RAL color
	Insulation			IR6	R6 Thermal Insulation
Model				YIN	Return
				FLYIN	Filter Return



EFFECTIVE
HVAC



AIR BALANCING





SKC
Constant Air Volume Dampers









EFFECTIVE  TM

SKC SERIES

Constant Air Volume Dampers



SKC-C
by MADEL®

-  Self adjusts itself to maintain pre-set air volume
-  Available for duct diameters ranging between 4" and 16"
-  Facilitates air balancing
-  Helps prevent pressure loss over time, i.e. caused by dirty filters or ducts
-  Compensates for sudden pressure changes caused by elevators, doors opening & more
-  Helps ensure optimal performance of the system over time and despite changing conditions
-  Good solution for high ceilings and areas which are harder to access for balancing
-  Performs in applications where pressures vary between 0.2 and 4.019 in.w.g. (50 and 1,000 Pa)

SKC-C series constant air volume dampers for circular duct, by EffectiV HVAC™ and MADEL®, greatly facilitate the balancing of ventilation systems. Those dampers maintain constant air volume at varying pressures caused by connection and disconnection of system parts, clogging of filters and ducts, wind effects, window opening, etc.

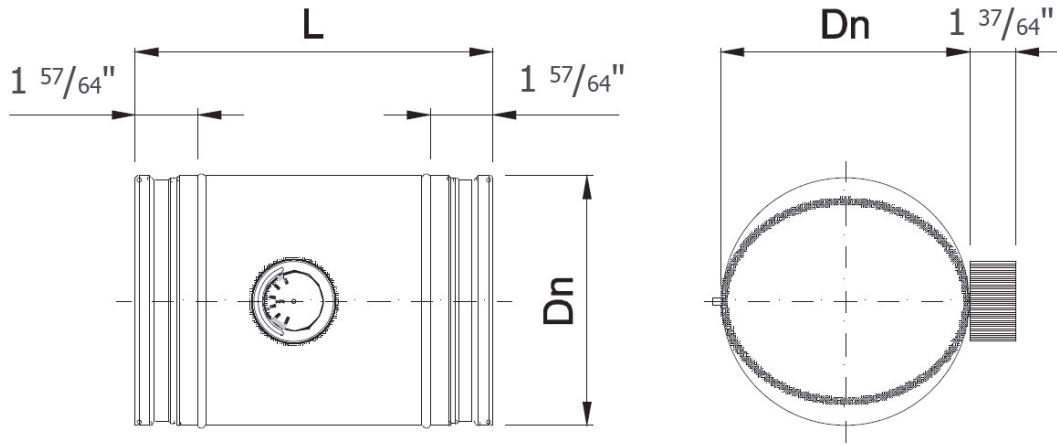
SKC-C is a self-adjustable damper, independent of external energy sources. It is preset by the installer to maintain a specific air volume in m³/h, easily convertible to cfm. The damper will then auto-adjust itself to maintain the desired volume of air while performing within a pressure range between 0.2 and 4.019 in.w.g. (between 50 and 1,000 Pa).

Adjustment is based on the balance between the force of air pressure on the blade and the reactive forces created by the spring and inflatable damper.

The adjustment knob has a graduated rate scale allowing for quick and easy adjustment of the desired air flow.

Model	Dn	L	Min cfm	Max cfm	Min Pressure Diff* (in.w.g.)	Max Pressure Diff (in.w.g.)
SKC-C 04	3 55/64"	8 55/64"	59	147	0.201 - 0.442	4.019
SKC-C 05	4 27/32"	10 5/8"	59	206	0.201 - 0.321	4.019
SKC-C 06	6 7/32"	11 39/64"	106	353	0.201 - 0.402	4.019
SKC-C 08	7 51/64"	11 39/64"	147	529	0.201 - 0.502	4.019
SKC-C 10	9 49/64"	13 3/16"	265	706	0.201 - 0.543	4.019
SKC-C 12	12 21/64"	13 25/64"	412	1235	0.201 - 0.884	4.019
SKC-C 14	13 57/64"	14 61/64"	529	1529	0.201 - 0.884	4.019
SKC-C 16	15 43/64"	16 17/32"	588	2000	0.201 - 0.884	4.019

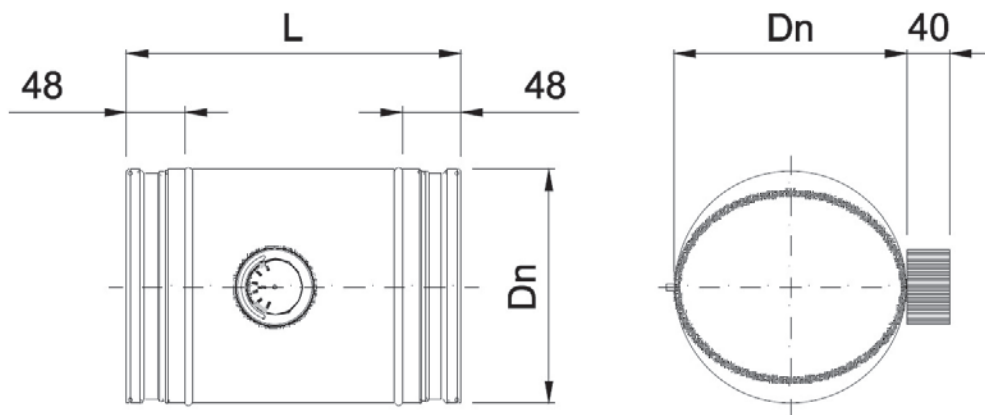
*Minimum pressure difference varies with air volume



Metric Dimensions

Model	Dn	L	Min m3/h	Max m3/h	Min Pressure Diff* (Pa)	Max Pressure Diff (Pa)
SKC-C 80	78 mm	225 mm	60	150	50 - 115	1000
SKC-C 100	98 mm	270 mm	100	250	50 - 110	1000
SKC-C 125	123 mm	270 mm	100	350	50 - 80	1000
SKC-C 160	158 mm	295 mm	180	600	50 - 100	1000
SKC-C 200	198 mm	295 mm	250	900	50 - 125	1000
SKC-C 250	248 mm	335 mm	450	1200	50 - 135	1000
SKC-C 315	313 mm	340 mm	700	2100	50 - 220	1000
SKC-C 355	353 mm	380 mm	900	2600	50 - 220	1000
SKC-C 400	398 mm	420 mm	1000	3400	50 - 220	1000

*Minimum pressure difference varies with air volume



SKC-C 80 Performance Data

cfm	m3/h	NC 100 Pa 0.4 in.w.g.	NC 250 Pa 1 in.w.g.	NC 500 Pa 2 in.w.g.	DPt (in.w.g.)
24	40	28	40	47	0.04
35	60	32	42	49	0.088
50	85	35	44	51	0.181
74	125	39	48	55	0.321

SKC-C 100 Performance Data

cfm	m3/h	NC 100 Pa 0.4 in.w.g.	NC 250 Pa 1 in.w.g.	NC 500 Pa 2 in.w.g.	DPt (in.w.g.)
41	70	33	40	45	0.06
65	110	36	44	50	0.12
100	170	39	48	54	0.321
124	210	41	50	55	0.442

SKC-C 125 Performance Data

cfm	m3/h	NC 100 Pa 0.4 in.w.g.	NC 250 Pa 1 in.w.g.	NC 500 Pa 2 in.w.g.	DPt (in.w.g.)
65	110	34	41	46	0.052
103	175	37	45	51	0.141
156	265	39	48	55	0.249
194	330	41	50	56	0.361

SKC-C 160 Performance Data

cfm	m3/h	NC 100 Pa 0.4 in.w.g.	NC 250 Pa 1 in.w.g.	NC 500 Pa 2 in.w.g.	DPt (in.w.g.)
106	180	35	44	50	0.064
171	290	38	47	53	0.141
256	435	39	48	55	0.301
318	540	41	49	56	0.402

SKC-C 200 Performance Data

cfm	m3/h	NC 100 Pa 0.4 in.w.g.	NC 250 Pa 1 in.w.g.	NC 500 Pa 2 in.w.g.	DPt (in.w.g.)
165	280	36	47	54	0.048
265	450	38	49	56	0.141
400	680	40	49	57	0.281
500	850	41	49	57	0.482

SKC-C 250 Performance Data

cfm	m3/h	NC 100 Pa 0.4 in.w.g.	NC 250 Pa 1 in.w.g.	NC 500 Pa 2 in.w.g.	DPt (in.w.g.)
265	450	37	37	55	0.06
412	700	39	49	56	0.104
623	1060	41	49	57	0.273
779	1325	42	51	57	0.522

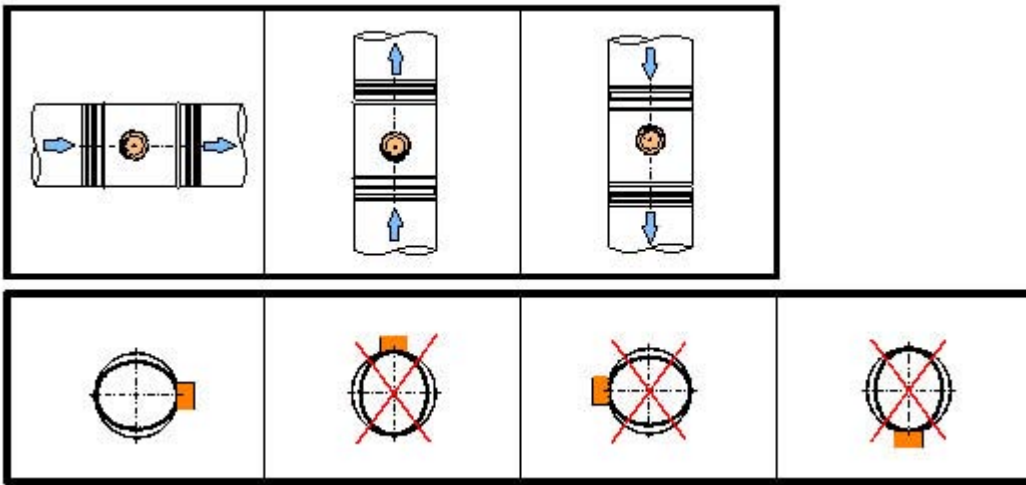
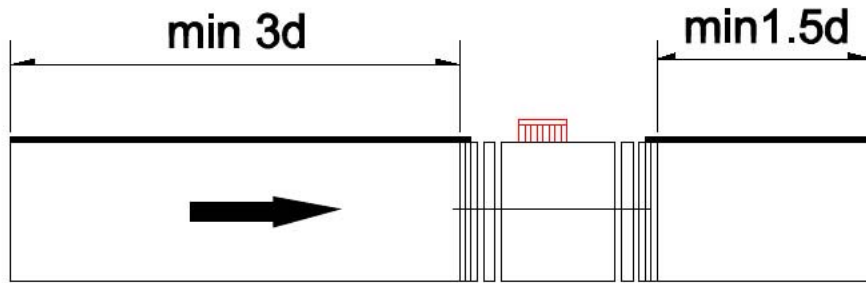
SKC-C 315 Performance Data

cfm	m3/h	NC 100 Pa 0.4 in.w.g.	NC 250 Pa 1 in.w.g.	NC 500 Pa 2 in.w.g.	DPt (in.w.g.)
412	700	38	50	56	0.08
659	1120	40	49	57	0.181
988	1680	44	50	57	0.341
1235	2100	47	52	58	0.554

SKC-C 400 Performance Data

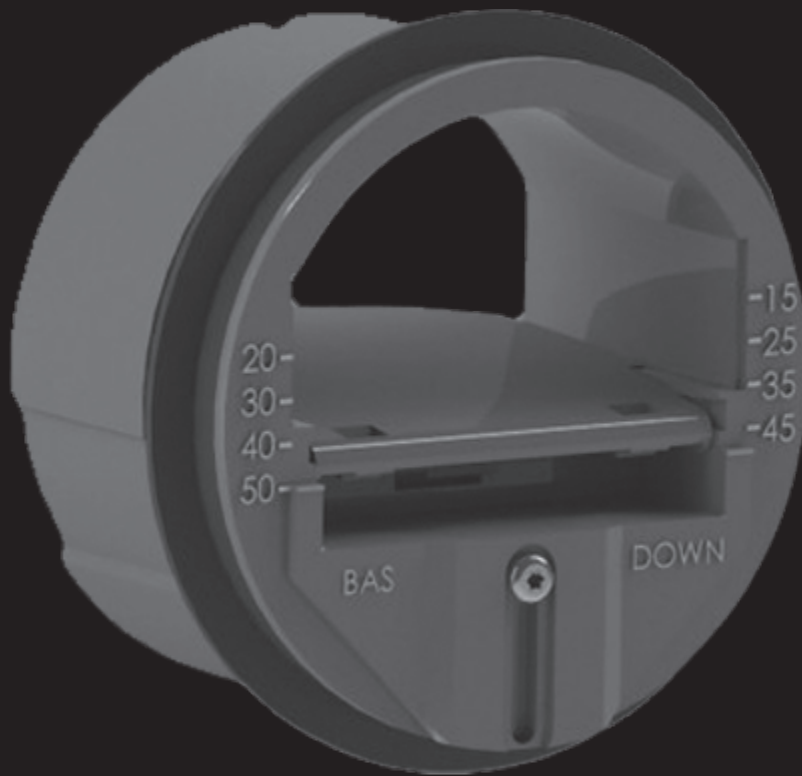
cfm	m3/h	NC 100 Pa 0.4 in.w.g.	NC 250 Pa 1 in.w.g.	NC 500 Pa 2 in.w.g.	DPt (in.w.g.)
665	1130	40	52	58	0.096
1059	1800	41	51	56	0.217
1588	2700	51	53	58	0.502
2000	3400	55	56	61	0.743

SKC-C Installation



How to Specify SKC-C

Supply and mounting of SKC-C constant air volume damper for circular duct, self-adjustable to maintain pre-set air volume within pressures ranging between 50 Pa and 1,000 Pa. Constructed from galvanized steel. By EffectiV HVAC / MADEL.









SKP

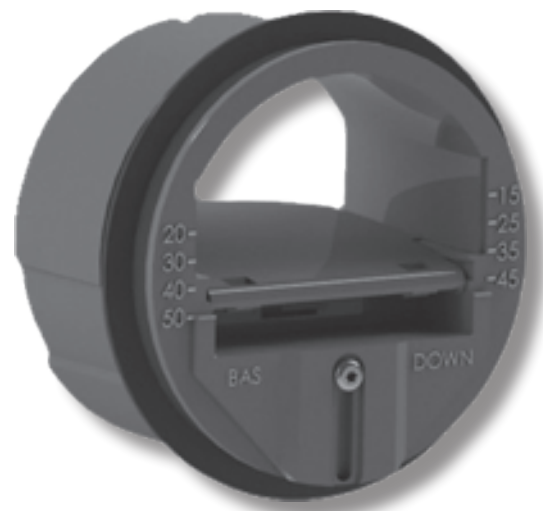
Low Pressure Constant Air Volume Dampers



SKP SERIES

Low Pressure Constant Air Volume Dampers

-  Self-adjusts to maintain preset air volume
-  Performs in low pressure applications between 50 and 250 Pa
-  Available for duct diameters ranging between 4" and 10"
-  Facilitates air balancing
-  Helps ensure optimal performance of the system over time
-  Great solution for high ceilings and areas hard to access for balancing



SKP
by **MADEL®**

SKP series low pressure constant air volume dampers for circular duct, by EffectiV HVAC™ and MADEL®, greatly facilitate the balancing of ventilation systems. Those dampers maintain constant air volume within a pressure zone between 50 and 250 Pa.

SKP is a self-adjustable damper. It is preset by the installer to maintain a specific air volume in m³/h, by mean of a screw. The damper will then auto-adjust itself to maintain the desired volume of air while performing within the pressure range. The damper is operated by an opposed opening force from a spring on the blade.

Housing is constructed from galvanized steel or plastic, the regulator blade is constructed from plastic and tightness joint from rubber. The entire product is rated UL 2043.

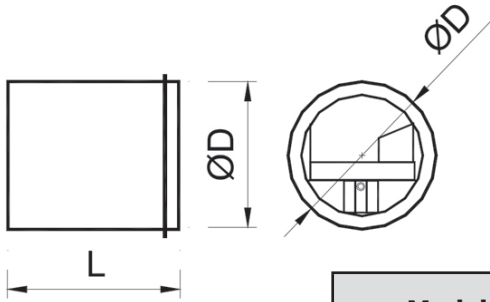
SKP Adjustment

Before fitting the regulator, the flowrate must be calibrated:

1. Slacken the locking screw on the flow regulation module with a Torx No.10 screwdriver
2. Align the set point marking with the required flowrate on the left or right of the module (see picture example of 50 m³/h setting). **1 cfm = 1.7 m³/h**
3. Tighten the locking screw on the flow regulation module



Intermediate flowrates are possible by aligning the set point marking between graduations on the regulator.

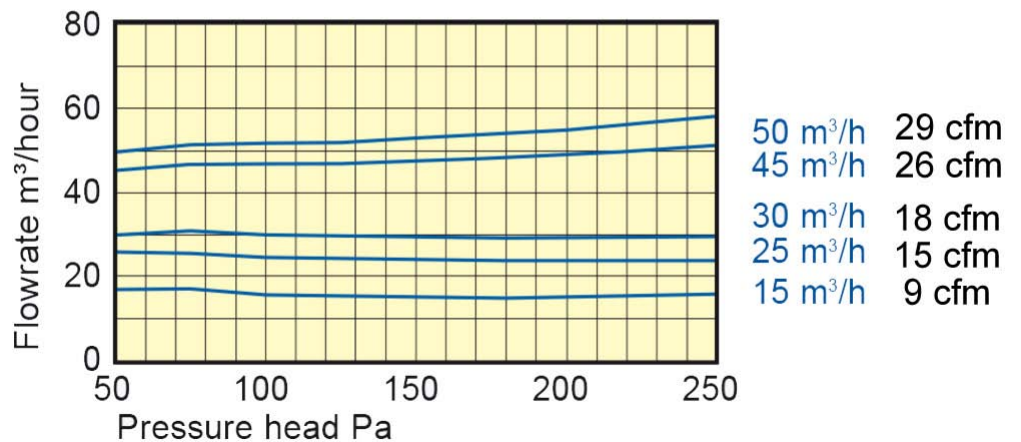


Model	D	L	Min m3/h	Max m3/h	Min cfm	Max cfm
SKP 80-30	2 63/64"	2 11/64"	15	50	9	29
SKP 100-30	3 25/32"	2 3/4"	15	50	9	29
SKP 100-60	3 25/32"	2 3/4"	50	100	29	59
SKP 125-30	4 23/32"	3 25/64"	15	50	9	29
SKP 125-60	4 23/32"	3 25/64"	50	100	29	59
SKP 125-120	4 23/32"	3 25/64"	100	180	59	106
SKP 150-150	5 53/64"	3 37/64"	100	180	59	106
SKP 150-210	5 53/64"	3 37/64"	180	300	106	176
SKP 160-150	5 53/64"	3 37/64"	100	180	59	106
SKP 160-210	5 53/64"	3 37/64"	180	300	106	176
SKP 200-300	7 43/64"	3 37/64"	180	300	106	176
SKP 200-350	7 43/64"	3 37/64"	300	500	176	294
SKP 250-500	9 41/64"	3 37/64"	300	500	176	294
SKP 250-600	9 41/64"	3 37/64"	500	700	294	412

SKP 80 Performance Data

SKP 80-30

15-50 m3/h (9-29 cfm)



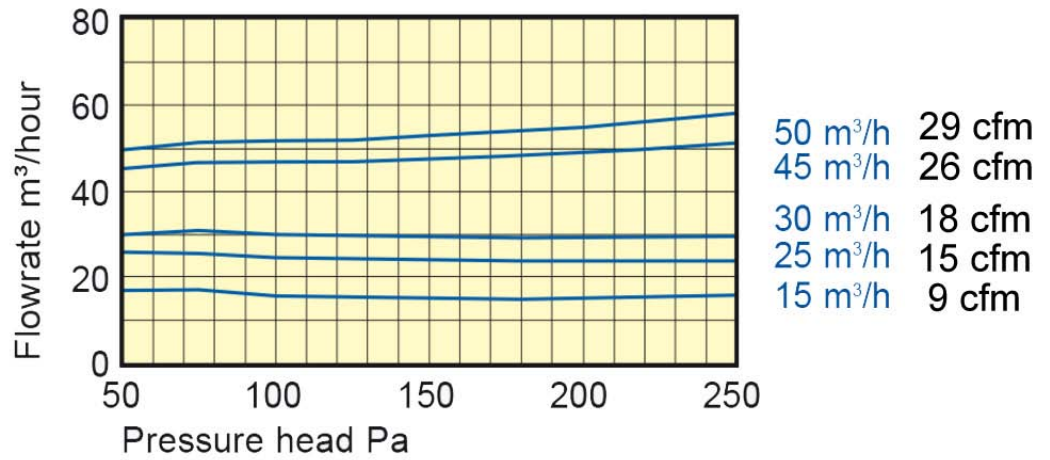
Acoustic Power Level Lw in dB(A)

cfm	m3/h	NC 50 Pa	NC 100 Pa	NC 150 Pa	NC 200 Pa
9	15	25	29	32	35
18	30	26	31	35	38
26	45	27	33	36	39
29	50	32	37	39	42

SKP 100 Performance Data

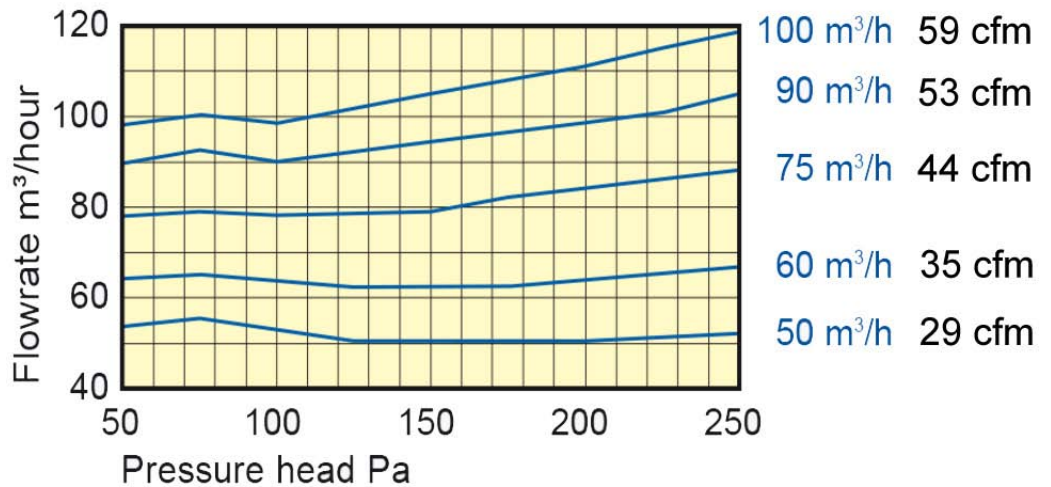
SKP 100-30

15-50 m³/h (9-29 cfm)



SKP 100-60

50-100 m³/h (29-59 cfm)



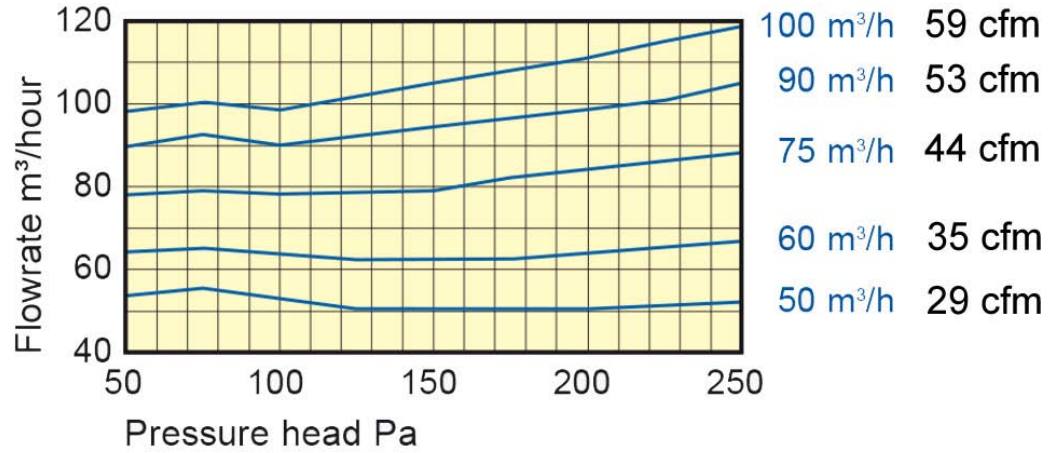
Acoustic Power Level L_w in dB(A)

cfm	m ³ /h	NC 50 Pa	NC 100 Pa	NC 150 Pa	NC 200 Pa
9	15	25	29	32	35
18	30	26	31	35	38
26	45	27	33	36	39
35	60	32	37	39	42
44	75	32	37	40	42
53	90	32	38	41	44

SKP 125 Performance Data

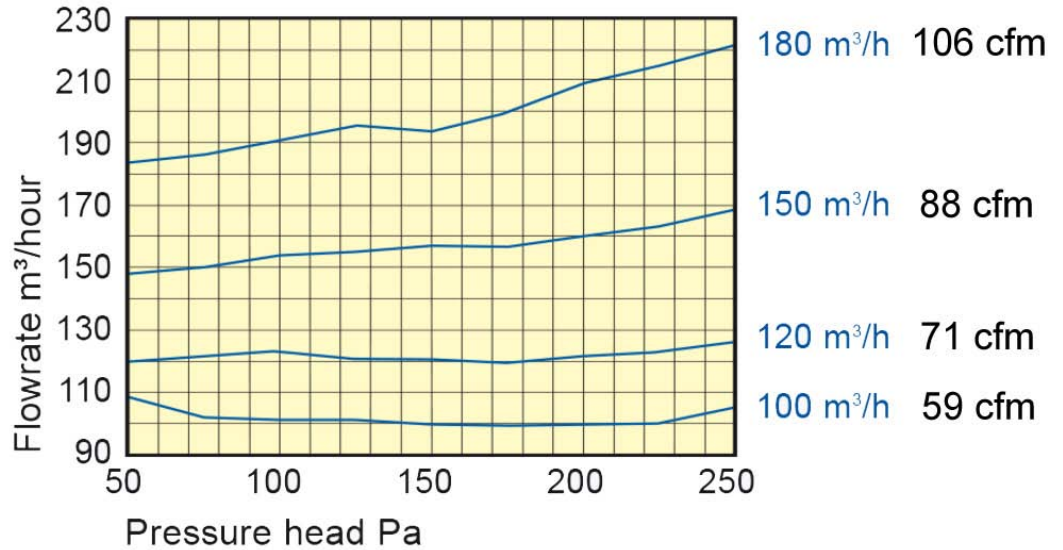
SKP 125-60

50-100 m³/h (29-59 cfm)



SKP 125-120

100-180 m³/h (59-106 cfm)



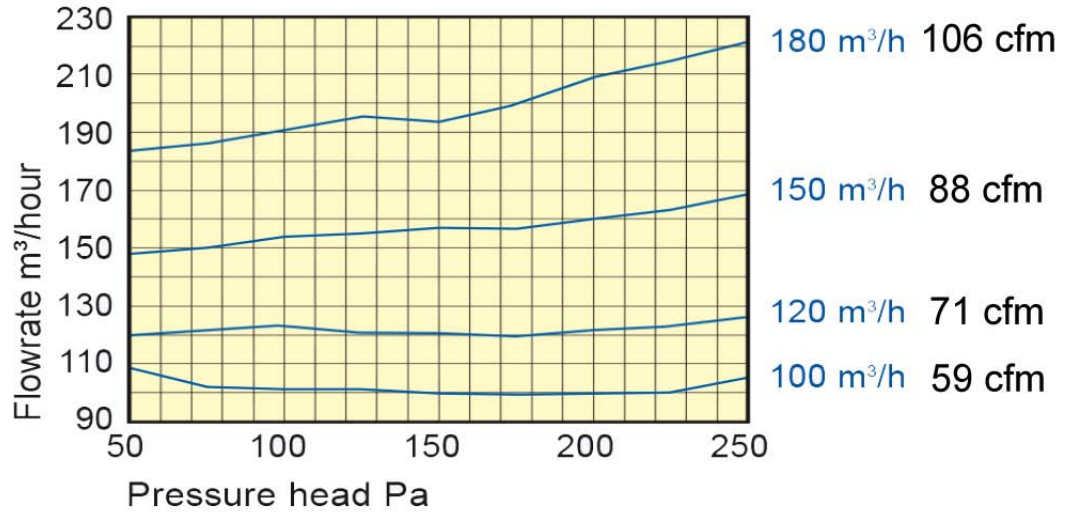
Acoustic Power Level L_w in dB(A)

cfm	m ³ /h	NC 50 Pa	NC 100 Pa	NC 150 Pa	NC 200 Pa
9	15	25	29	32	35
18	30	26	31	35	38
26	45	27	33	36	39
35	60	32	37	39	42
44	75	32	37	40	42
53	90	32	38	41	44
71	120	30	37	39	42
88	150	33	37	41	45
106	180	34	40	44	47

SKP 150 & 160 Performance Data

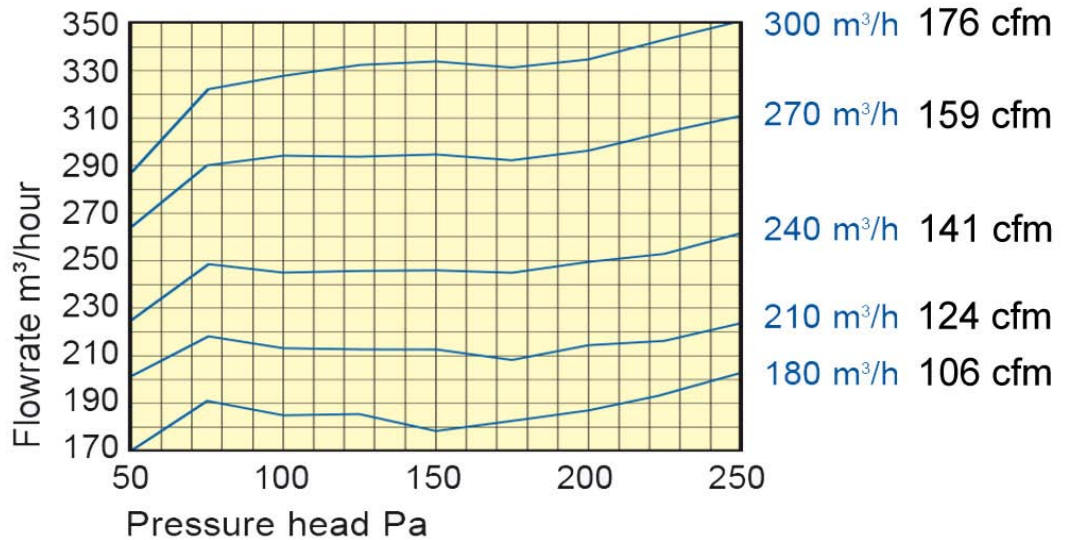
SKP 150/160-150

100-180 m³/h (59-106 cfm)



SKP 150/160-210

180-300 m³/h (106-176 cfm)



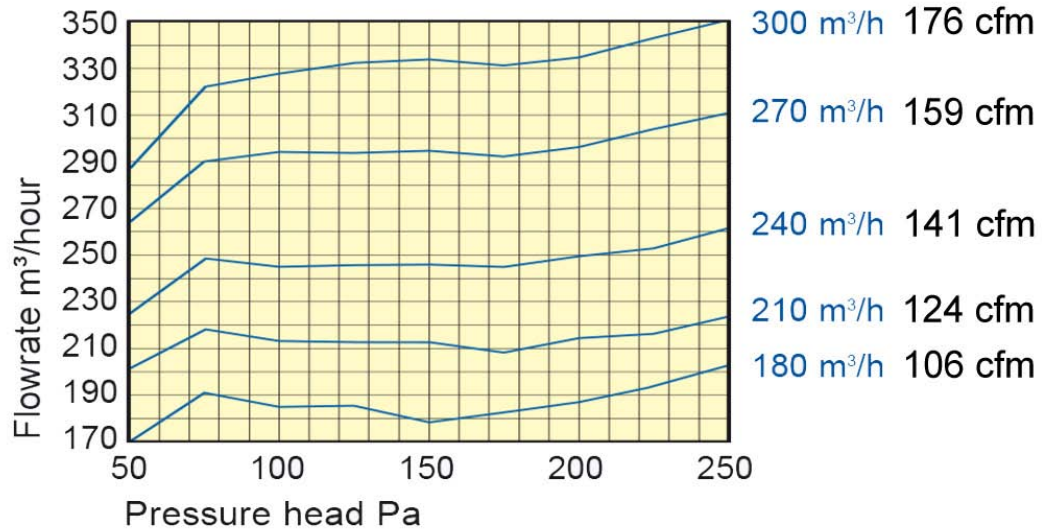
Acoustic Power Level Lw in dB(A)

cfm	m ³ /h	NC 50 Pa	NC 100 Pa	NC 150 Pa	NC 200 Pa
71	120	30	37	39	42
88	150	33	37	41	45
106	180	34	40	44	47
124	210	34	40	42	44
141	240	35	41	44	47
159	270	37	43	45	49
176	300	33	37	42	45

SKP 200 Performance Data

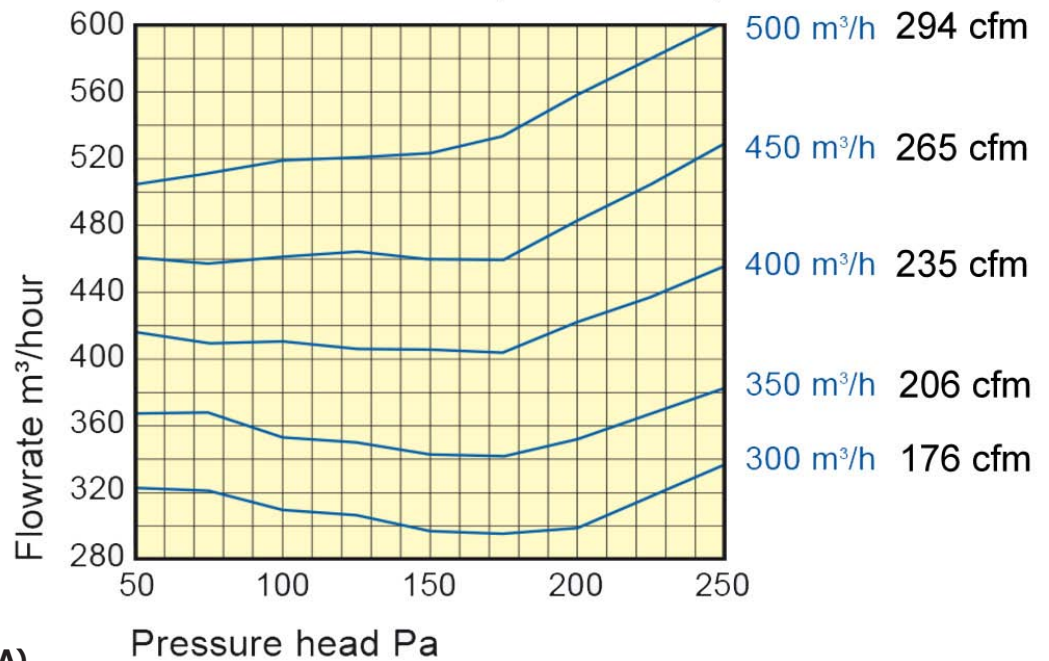
SKP 200-300

180-300 m³/h (106-176 cfm)



SKP 200-350

300-500 m³/h (176-294 cfm)



Acoustic Power Level L_w in dB(A)

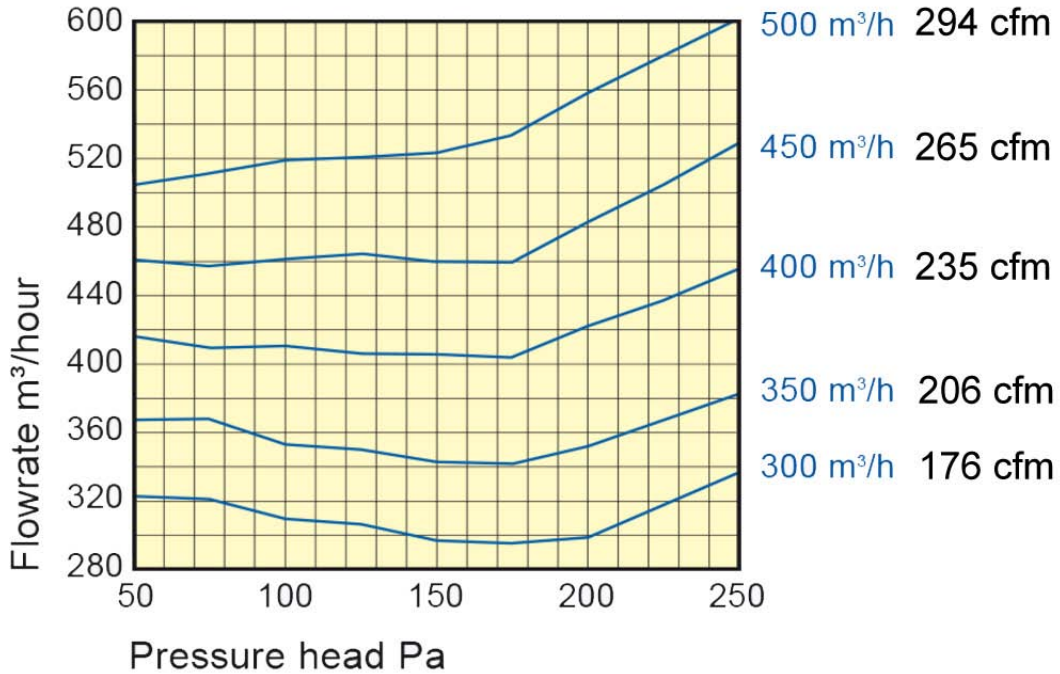
Pressure head Pa

cfm	m ³ /h	NC 50 Pa	NC 100 Pa	NC 150 Pa	NC 200 Pa
124	210	34	40	42	44
141	240	35	41	44	47
159	270	37	43	45	49
176	300	33	37	42	45
206	350	35	40	44	47
235	400	37	42	45	50
265	450	38	44	46	51
294	500	39	46	48	53

SKP 250 Performance Data

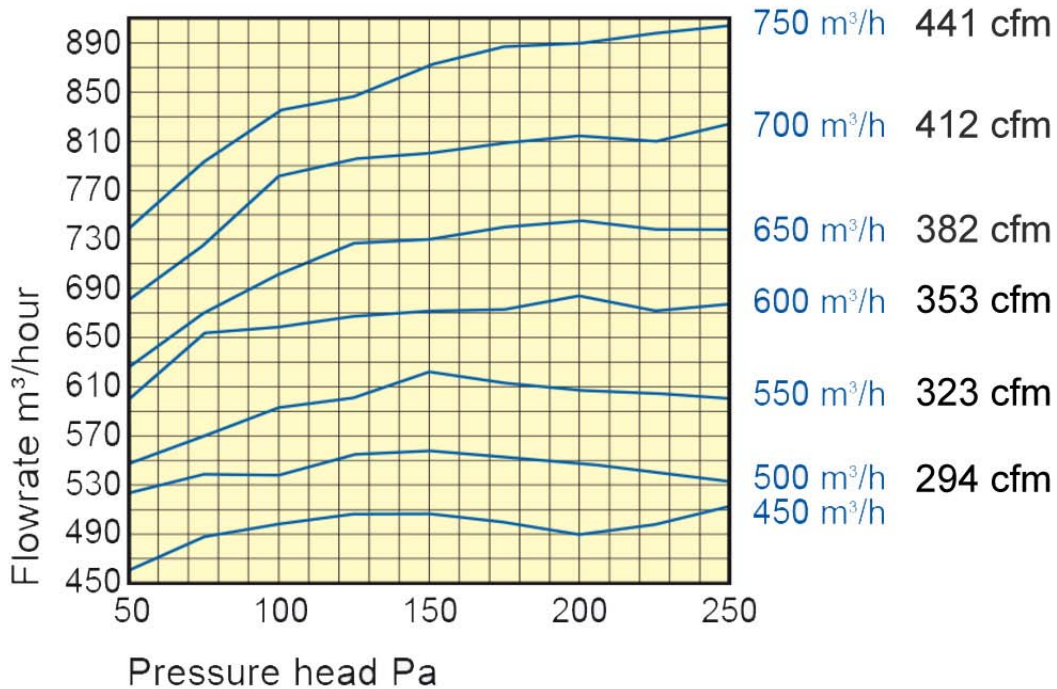
SKP 250-500

300-500 m³/h (176-294 cfm)



SKP 250-600

500-700 m³/h (294-412 cfm)



... SKP 250 Performance Data

Acoustic Power Level Lw in dB(A)

cfm	m3/h	NC 50 Pa	NC 100 Pa	NC 150 Pa	NC 200 Pa
124	210	34	40	42	44
141	240	35	41	44	47
159	270	37	43	45	49
176	300	33	37	42	45
206	350	35	40	44	47
235	400	37	42	45	50
265	450	38	44	46	51
294	500	39	46	48	53

How to Specify SKP

Supply and mounting of SKP low pressure constant air volume damper, self-adjustable to maintain desired volume of air in low pressure conditions varying between 50 Pa and 250 Pa. Constructed from plastic with UL 2043 certification. By EffectiV HVAC / MADEL.

SUBMITTAL DRAWINGS



AX6-MA Series Manually Adjustable Blades Round Swirl Diffusers

Material | Powder coated heavy gauge spun aluminum with steel blades.

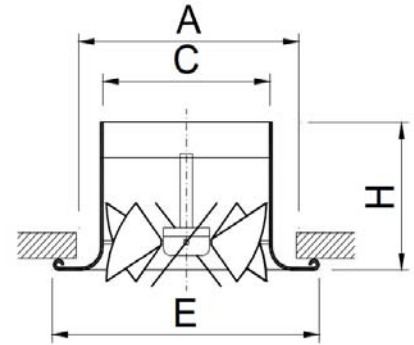
Air Pattern | 360° diffusion with horizontal swirl to downward flow, manual synchronous adjustment of the blades.

Ceiling Types | Open and Closed.



AX6-MA
by MADEL®

Select Model						
✓	Model	Duct	A	C	E	H
	AX6-MA 10	10	11 13/16	9 3/4	14 11/64	7 61/64
	AX6-MA 12	12.5	15 3/4	12 21/64	18 17/64	8 55/64
	AX6-MA 16	16	19 11/16	15 25/32	20 3/64	9 27/32
	AX6-MA 20	20	24 13/32	19 9/16	27 11/64	12 3/64
	AX6-MA 25	25	30 45/64	24 11/16	34 1/4	13 25/32

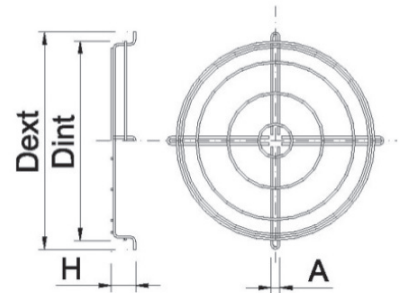


All dimensions in inches (in)

Optional CH6 Security Grille					
✓	Model	Dext	Dint	A	H
	CH6 10	13 25/32	11 13/16	35/64	1 37/64
	CH6 12	17 23/32	15 3/4	35/64	1 37/64
	CH6 16	21 21/32	19 11/16	43/64	1 31/32
	CH6 20	25 25/32	23 5/8	43/64	3 5/32
	CH6 25	33 55/64	31 7/64	25/32	3 35/64

All dimensions in inches

CH6 Security Grille



Select Finish	
	Powder Coated White (RAL 9016)
	Mill Finish
	Other RAL (specify) :

Project:
Engineer:
Architect:
Contractor:

AX6-MA Series Manually Adjustable Blades Round Swirl Diffusers

Material | Powder coated heavy gauge spun aluminum with steel blades.

Air Pattern | 360° diffusion with horizontal swirl to downward flow, manual synchronous adjustment of the blades.

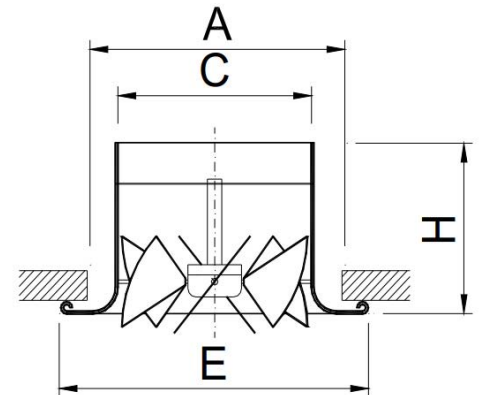
Ceiling Types | Open and Closed.



AX6-MA
by MADEL®

Select Model						
✓	Model	Duct	A	C	E	H
	AX6-MA 250	250	300	248	360	202
	AX6-MA 315	315	400	313	464	225
	AX6-MA 400	400	500	401	560	250
	AX6-MA 500	500	620	497	690	306
	AX6-MA 630	630	780	627	870	350

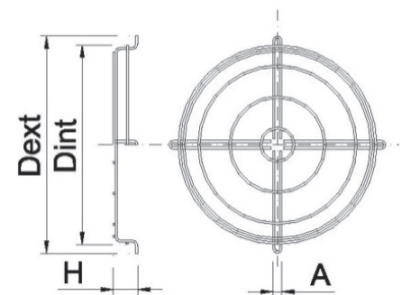
All dimensions in millimeters (mm)



Optional CH6 Security Grille					
✓	Model	Dext	Dint	A	H
	CH6 250	350	300	40	14
	CH6 315	450	400	40	14
	CH6 400	550	500	50	17
	CH6 500	655	600	80	17
	CH6 630	860	790	90	20

All dimensions in millimeters (mm)

CH6 Security Grille



Select Finish	
	Powder Coated White (RAL 9016)
	Mill Finish
	Other RAL (specify) :

Project:
Engineer:
Architect:
Contractor:



AX6-ACTIF Series Thermodynamic Aluminum Round Swirl Diffuser

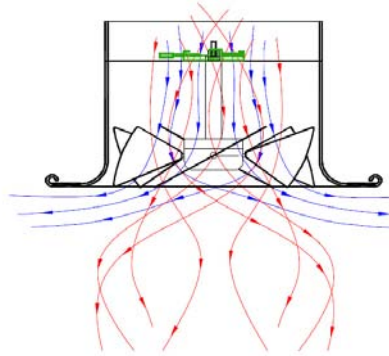
Material | Powder coated heavy gauge spun aluminum with steel blades.

Air Pattern | 360° diffusion with horizontal swirl to downward flow adjustment, autonomously adjusted by means of a thermodynamic piston.

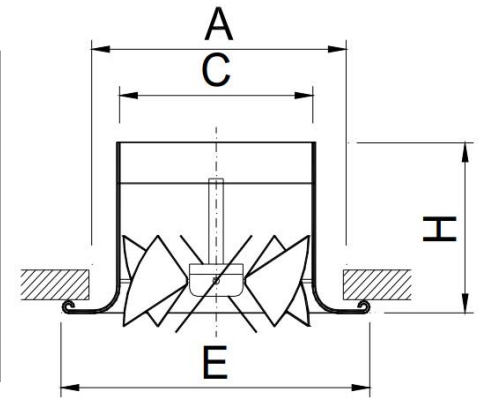
Ceiling Types | Open and Closed.



AX6-ACTIF
by MADEL®
ACTIF



Select Model						
✓	Model	Duct	A	C	E	H
	AX6-ACTIF 10	10	11 13/16	9 3/4	14 11/64	7 61/64
	AX6-ACTIF 12	12.5	15 3/4	12 21/64	18 17/64	8 55/64
	AX6-ACTIF 16	16	19 11/16	15 25/32	20 3/64	9 27/32
	AX6-ACTIF 20	20	24 13/32	19 9/16	27 11/64	12 3/64
	AX6-ACTIF 25	25	30 45/64	24 11/16	34 1/4	13 25/32

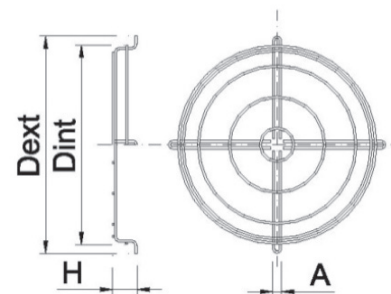


All dimensions in inches

Optional CH6 Security Grille					
✓	Model	Dext	Dint	A	H
	CH6 10	13 25/32	11 13/16	35/64	1 37/64
	CH6 12	17 23/32	15 3/4	35/64	1 37/64
	CH6 16	21 21/32	19 11/16	43/64	1 31/32
	CH6 20	25 25/32	23 5/8	43/64	3 5/32
	CH6 25	33 55/64	31 7/64	25/32	3 35/64

All dimensions in inches

CH6 Security Grille



Select Finish	
	Powder Coated White (RAL 9016)
	Mill Finish
	Other RAL (specify) :

Project:
Engineer:
Architect:
Contractor:

AX6-ACTIF Series Thermodynamic Aluminum Round Swirl Diffuser

Material | Powder coated heavy gauge spun aluminum with steel blades.

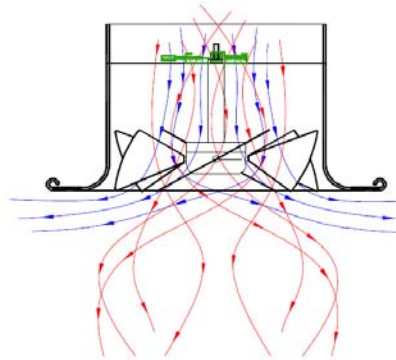
Air Pattern | 360° diffusion with horizontal swirl to downward flow adjustment, autonomously adjusted by means of a thermodynamic piston.

Ceiling Types | Open and Closed.

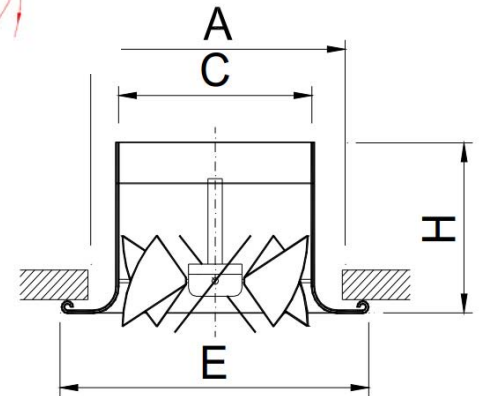


AX6-ACTIF
by MADEL®

ACTIF



Select Model						
✓	Model	Duct	A	C	E	H
	AX6-ACTIF 250	250	300	248	360	202
	AX6-ACTIF 315	315	400	313	464	225
	AX6-ACTIF 400	400	500	401	560	250
	AX6-ACTIF 500	500	620	497	690	306
	AX6-ACTIF 630	630	780	627	870	350

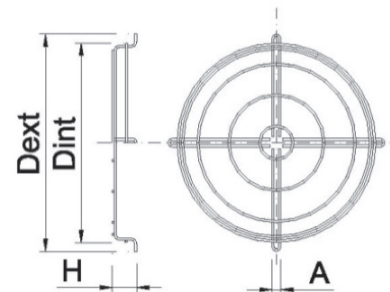


All dimensions in millimeters (mm)

Optional CH6 Security Grille					
✓	Model	Dext	Dint	A	H
	CH6 250	350	300	40	14
	CH6 315	450	400	40	14
	CH6 400	550	500	50	17
	CH6 500	655	600	80	17
	CH6 630	860	790	90	20

All dimensions in millimeters (mm)

CH6 Security Grille



Select Finish	
	Powder Coated White (RAL 9016)
	Mill Finish
	Other RAL (specify) :

Project:
Engineer:
Architect:
Contractor:



AX6-ACTIF-MOD Series Thermodynamic Aluminum Round Swirl Diffuser in Lay-In Panel

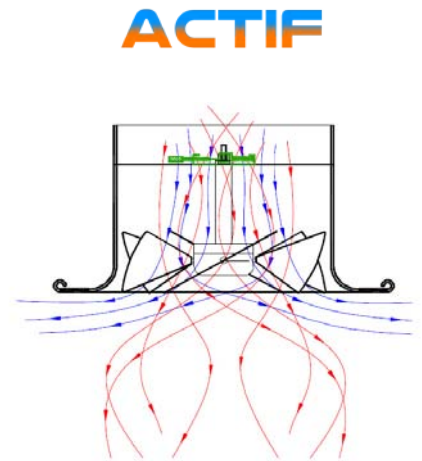
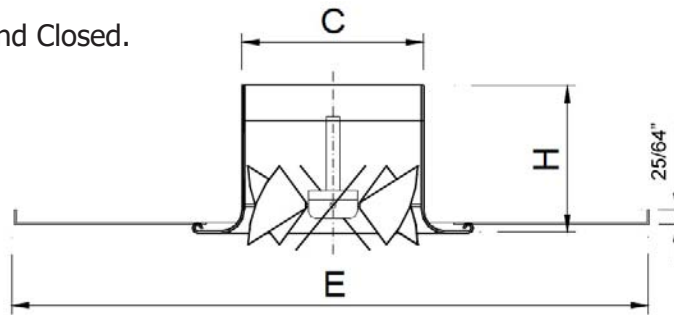


AX6-ACTIF-MOD
by MADEL®

Material | Powder coated heavy gauge spun aluminum with steel panel and blades.

Air Pattern | 360° diffusion with horizontal swirl to downward flow adjustment, autonomously adjusted by means of a thermodynamic piston.

Ceiling Types | Open and Closed.



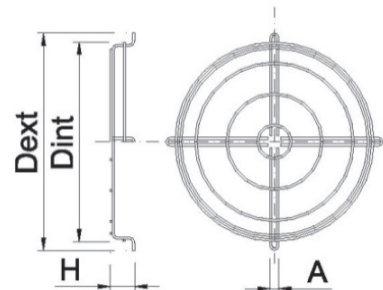
Select Model					
✓	Model	Duct	C	E	H
	AX6-ACTIF 10	10	9 3/4	23 3/4	7 61/64
	AX6-ACTIF 12	12.5	12 21/64	23 3/4	8 55/64
	AX6-ACTIF 16	16	15 25/32	23 3/4	9 27/32

All dimensions in inches

Optional CH6 Security Grille					
✓	Model	Dext	Dint	A	H
	CH6 10	13 25/32	11 13/16	35/64	1 37/64
	CH6 12	17 23/32	15 3/4	35/64	1 37/64
	CH6 16	21 21/32	19 11/16	43/64	1 31/32

All dimensions in inches

CH6 Security Grille



Select Finish	
	Powder Coated White (RAL 9016)
	Mill Finish
	Other RAL (specify) :

Project:
Engineer:
Architect:
Contractor:



AX6-ACTIF-MOD Series Thermodynamic Aluminum Round Swirl Diffuser in Lay-In Panel

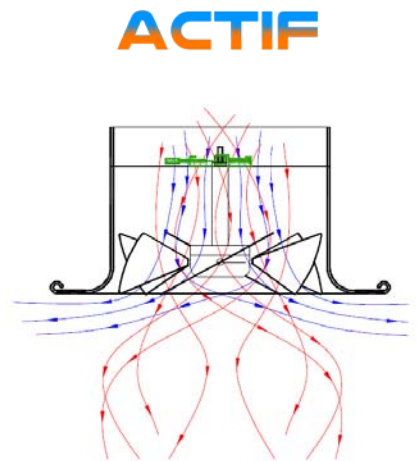
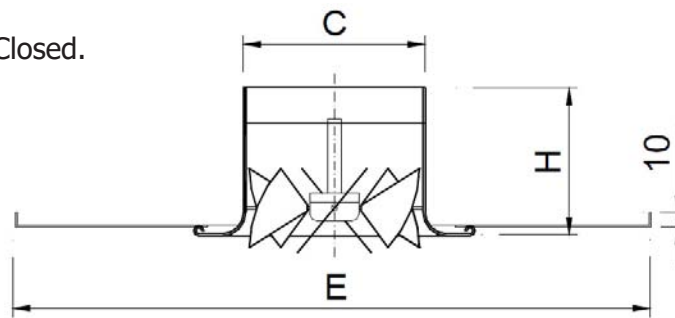
Material | Powder coated heavy gauge spun aluminum with steel panel and blades.

Air Pattern | 360° diffusion with horizontal swirl to downward flow adjustment, autonomously adjusted by means of a thermodynamic piston.

Ceiling Types | Open and Closed.



AX6-ACTIF-MOD
by MADEL®



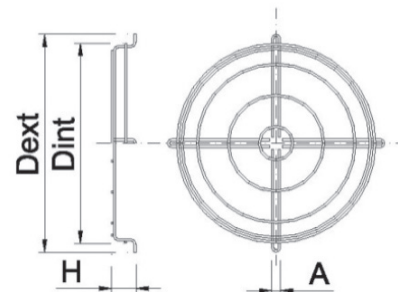
Select Model					
✓	Model	Duct	C	E	H
	AX6-ACTIF-MOD 250	250	248	605	202
	AX6-ACTIF-MOD 315	315	313	605	225
	AX6-ACTIF-MOD 400	400	401	605	250

All dimensions in millimeters (mm)

Optional CH6 Security Grille					
✓	Model	Dext	Dint	A	H
	CH6 250	350	300	40	14
	CH6 315	450	400	40	14
	CH6 400	550	500	50	17

All dimensions in millimeters (mm)

CH6 Security Grille



Select Finish	
✓	Powder Coated White (RAL 9016)
	Mill Finish
	Other RAL (specify) :

Project:
Engineer:
Architect:
Contractor:

AX6-MO Series Actuator-Controlled Adjustable Aluminum Round Swirl Diffusers

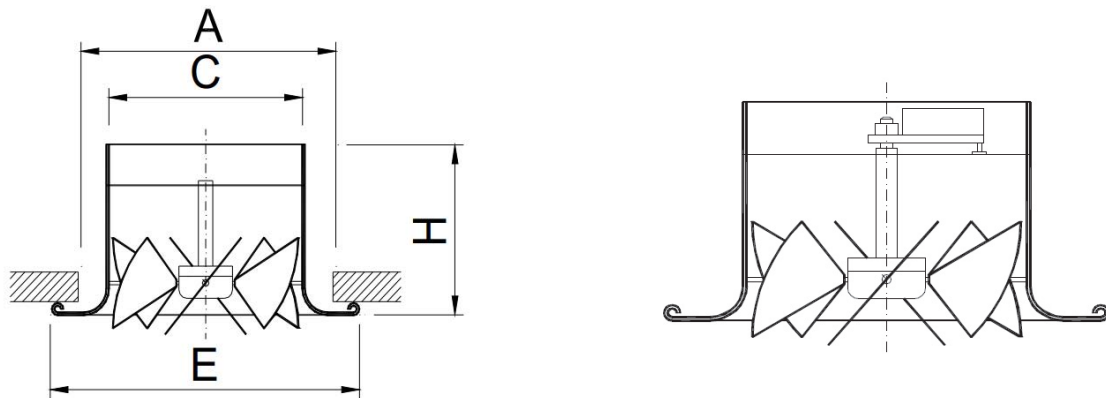
Material | Powder coated heavy gauge spun aluminum with steel blades.

Air Pattern | 360° diffusion with horizontal swirl to downward flow adjustment, adjusted by means of an actuator.

Ceiling Types | Open and Closed.



AX6-MO
by MADEL®

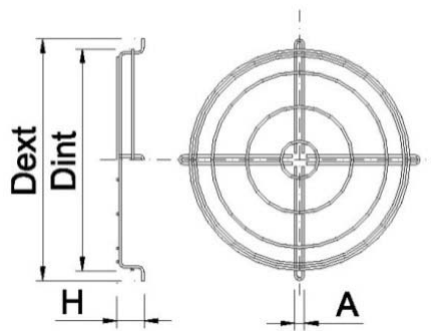


Select Model						
✓	Model	Duct	A	C	E	H
	AX6-MO 10	10	11 13/16	9 3/4	14 11/64	7 61/64
	AX6-MO 12	12.5	15 3/4	12 21/64	18 17/64	8 55/64
	AX6-MO 16	16	19 11/16	15 25/32	20 3/64	9 27/32
	AX6-MO 20	20	24 13/32	19 9/16	23 15/64	12 3/64
	AX6-MO 25	25	30 45/64	24 11/16	34 1/4	13 25/32

All dimensions in inches

Select Actuator	
NM-24v	Belimo On/Off actuator, 24 V
NM-230v	Belimo On/Off actuator, 230 V
NM24-SR	Belimo proportional actuator, 24 V
GLB131.1E -24v	Siemens On/Off actuator, 24 V
GLB331.1E -230v	Siemens On/Off actuator, 230 V
GLB161.1E -24v	Siemens proportional actuator, 24 V

CH6 Security Grille



Optional CH6 Security Grille					
✓	Model	Dext	Dint	A	H
	CH6 10	13 ²⁵ / ₃₂	11 ¹³ / ₁₆	³⁵ / ₆₄	1 ³⁷ / ₆₄
	CH6 12	17 ²³ / ₃₂	15 ³ / ₄	³⁵ / ₆₄	1 ³⁷ / ₆₄
	CH6 16	21 ²¹ / ₃₂	19 ¹¹ / ₁₆	⁴³ / ₆₄	1 ³¹ / ₃₂
	CH6 20	25 ²⁵ / ₃₂	23 ⁵ / ₈	⁴³ / ₆₄	3 ⁵ / ₃₂
	CH6 25	33 ⁵⁵ / ₆₄	31 ⁷ / ₆₄	²⁵ / ₃₂	3 ³⁵ / ₆₄

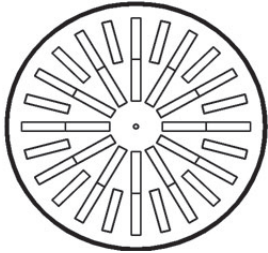
All dimensions in inches

Select Finish	
<input type="checkbox"/>	Powder Coated White (RAL 9016)
<input type="checkbox"/>	Mill Finish
<input type="checkbox"/>	Other RAL (specify) :

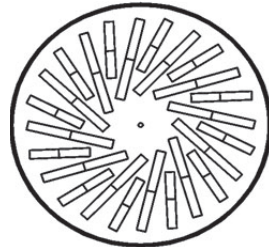
Project:	
Engineer:	
Architect:	
Contractor:	



AXO-C Series Adjustable Vanes Round Swirl Diffusers



AXO-C



AXO-CY

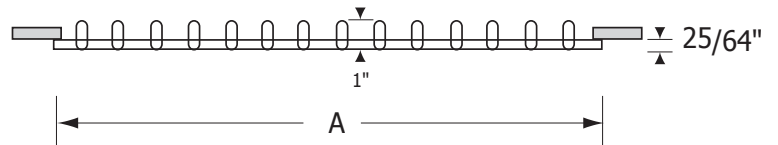


AXO-C
by MADEL®

Material | Powder coated stamped heavy gauge steel face and ABS vanes, galvanized steel plenum.

Air Pattern | Adjustable high induction swirl pattern.

Ceiling Types | Open and Closed.

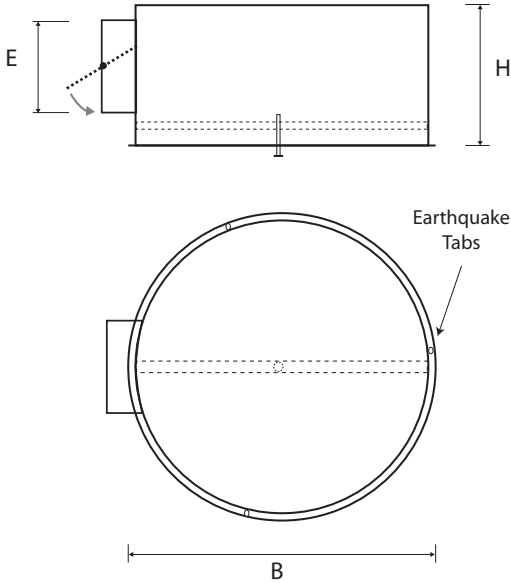


Select Model		
✓	Imperial	A (in)
	AXO-C 12	11 39/64
	AXO-C 16	15 35/64
	AXO-C 20	19 31/64
	AXO-C 25	24 13/32
	AXO-CY 25	24 13/32
	AXO-C 33	32 9/32

Select Options	
<input type="checkbox"/>	Black ABS Vanes
<input type="checkbox"/>	White ABS Vanes

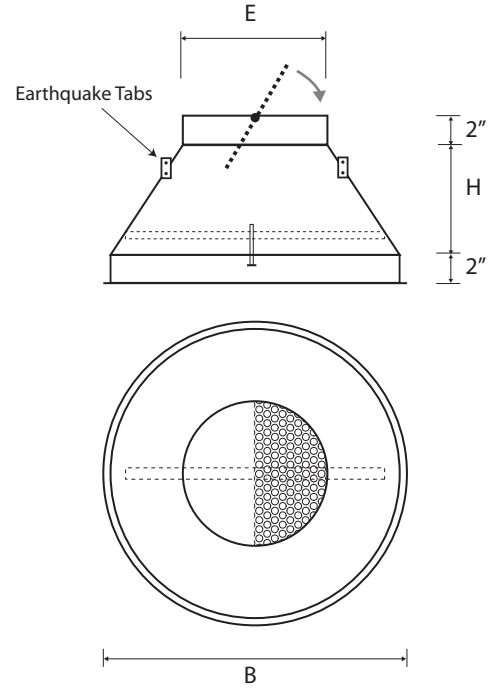
Select Finish	
<input type="checkbox"/>	Powder Coated White RAL9016
<input type="checkbox"/>	Other (specify) :

Plenum



PERFAIR-CS

Cylindrical with side duct connection, ideal for closed ceilings.



PERFAIR-CT

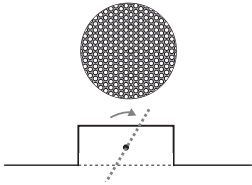
Conical with top duct connection, ideal for open ceilings with visible duct.

Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CS 1205	5	11 3/8	4 7/8	9
	PERFAIR-CS 1206	6	11 3/8	5 7/8	9
	PERFAIR-CS 1208	8	11 3/8	7 7/8	9
	PERFAIR-CS 1606	6	15 1/4	5 7/8	10
	PERFAIR-CS 1608	8	15 1/4	7 7/8	10
	PERFAIR-CS 2006	6	19	5 7/8	12
	PERFAIR-CS 2008	8	19	7 7/8	12
	PERFAIR-CS 2010	10	19	9 7/8	12
	PERFAIR-CS 2506	6	24	5 7/8	13
	PERFAIR-CS 2508	8	24	7 7/8	13
	PERFAIR-CS 2510	10	24	9 7/8	13
	PERFAIR-CS 2512	12	24	11 7/8	13
	PERFAIR-CS 3312	12	33	11 7/8	16

Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CT 1205	5	11 3/8	4 7/8	6
	PERFAIR-CT 1206	6	11 3/8	5 7/8	6
	PERFAIR-CT 1208	8	11 3/8	7 7/8	6
	PERFAIR-CT 1606	6	15 1/4	5 7/8	6
	PERFAIR-CT 1608	8	15 1/4	7 7/8	6
	PERFAIR-CT 2006	6	19	5 7/8	8
	PERFAIR-CT 2008	8	19	7 7/8	8
	PERFAIR-CT 2010	10	19	9 7/8	8
	PERFAIR-CT 2506	6	24	5 7/8	8
	PERFAIR-CT 2508	8	24	7 7/8	8
	PERFAIR-CT 2510	10	24	9 7/8	8
	PERFAIR-CT 2512	12	24	11 7/8	8
	PERFAIR-CT 3312	12	33	11 7/8	12

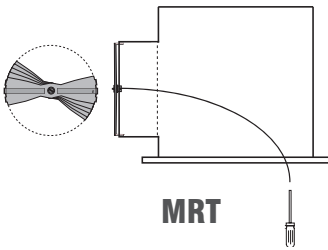
All dimensions in inches

Air Volume Dampers



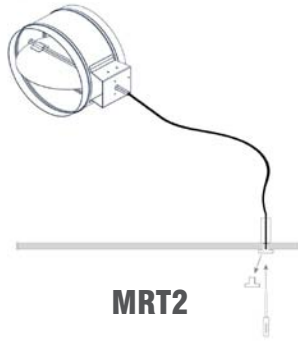
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



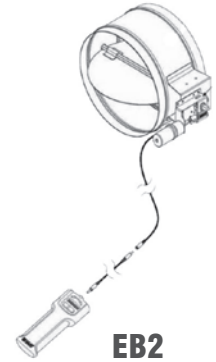
MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation		
AL		1/2" Interior Accoustical Liner
AL1		1" Interior Accoustical Liner
R6		2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper		
R		Perforated air volume damper/equalizer
MRT		Manually operated, cable thru face
MRT2		Manually operated, termination fixture
EB		Electro-balanced, battery powered, cable thru face
EB2		Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)		

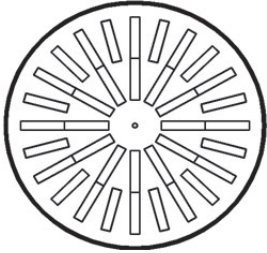
Project:
Engineer:
Architect:
Contractor:



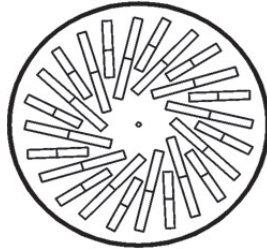
AXO-C Series Adjustable Vanes Round Swirl Diffusers



AXO-C
by MADEL®



AXO-C

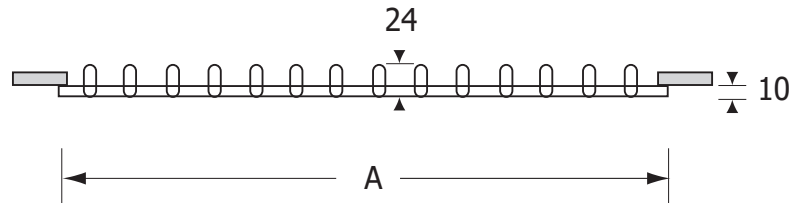


AXO-CY

Material | Powder coated stamped heavy gauge steel face and ABS vanes, galvanized steel plenum.

Air Pattern | Adjustable high induction swirl pattern.

Ceiling Types | Open and Closed.

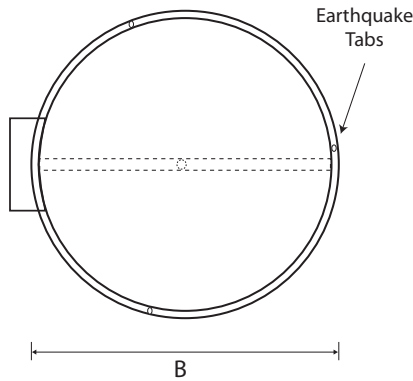
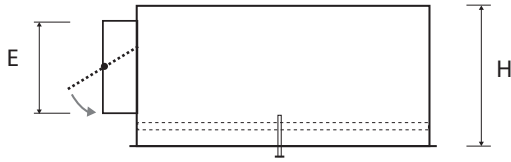


Select Model		
✓	Metric	A (mm)
	AXO-C 300	295
	AXO-C 400	395
	AXO-C 500	495
	AXO-C 625	620
	AXO-CY 625	620
	AXO-C 825	820

Select Options	
<input type="checkbox"/>	Black ABS Vanes
<input type="checkbox"/>	White ABS Vanes

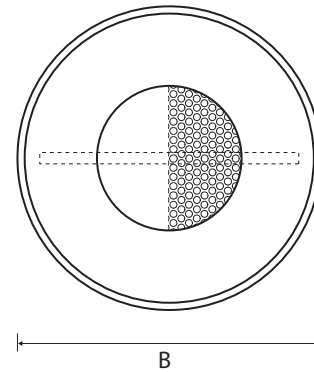
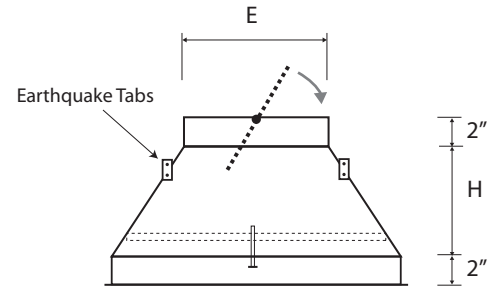
Select Finish	
<input type="checkbox"/>	Powder Coated White RAL9016
<input type="checkbox"/>	Other (specify) :

Plenum



PERFAIR-CS

Cylindrical with side duct connection, ideal for closed ceilings.



PERFAIR-CT

Conical with top duct connection, ideal for open ceilings with visible duct.

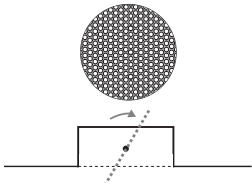
Select Model - Metric					
✓	Model	Duct Size	B	E	H
	PERFAIR-CS 300 125	125	295	123	225
	PERFAIR-CS 300 150	150	295	148	225
	PERFAIR-CS 300 200	200	295	198	225
	PERFAIR-CS 400 150	150	395	148	250
	PERFAIR-CS 400 200	200	395	198	250
	PERFAIR-CS 500 150	150	495	148	300
	PERFAIR-CS 500 200	200	495	198	300
	PERFAIR-CS 500 250	250	495	248	300
	PERFAIR-CS 625 150	150	620	148	350
	PERFAIR-CS 625 200	200	620	198	350
	PERFAIR-CS 625 250	250	620	248	350
	PERFAIR-CS 625 300	300	620	298	350
	PERFAIR-CS 825 300	300	820	298	415

All dimensions in mm

Select Model - Metric					
✓	Model	Duct Size	B	E	H
	PERFAIR-CT 300 125	125	295	123	152
	PERFAIR-CT 300 150	150	295	148	152
	PERFAIR-CT 300 200	200	295	198	152
	PERFAIR-CT 400 150	150	395	148	152
	PERFAIR-CT 400 200	200	395	198	152
	PERFAIR-CT 500 150	150	495	148	203
	PERFAIR-CT 500 200	200	495	198	203
	PERFAIR-CT 500 250	250	495	248	203
	PERFAIR-CT 625 150	150	620	148	203
	PERFAIR-CT 625 200	200	620	198	203
	PERFAIR-CT 625 250	250	620	248	203
	PERFAIR-CT 625 300	300	620	298	203
	PERFAIR-CT 825 300	300	820	298	305

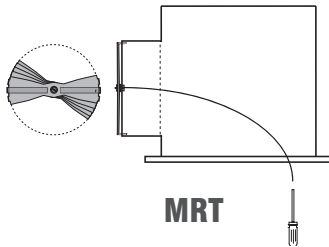
All dimensions in mm

Air Volume Dampers



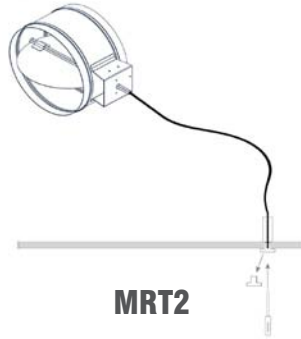
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



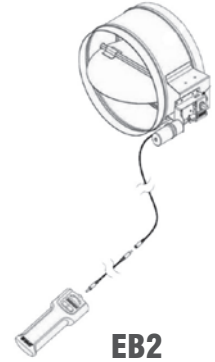
MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation		
AL		12 mm Interior Accoustical Liner
AL1		25 mm Interior Accoustical Liner
R6		50 mm Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper		
R		Perforated air volume damper/equalizer
MRT		Manually operated, cable thru face
MRT2		Manually operated, termination fixture
EB		Electro-balanced, battery powered, cable thru face
EB2		Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)		

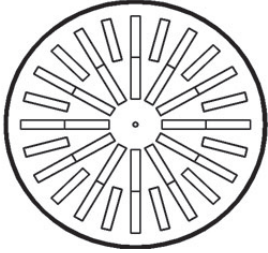
Project:
Engineer:
Architect:
Contractor:



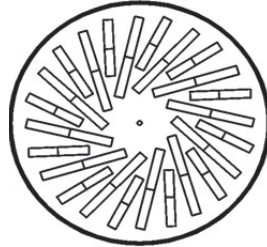
AXO-ALU-C Series Adjustable Vanes Round Swirl Diffusers



AXO-ALU-C
by MADEL®



AXO-ALU-C

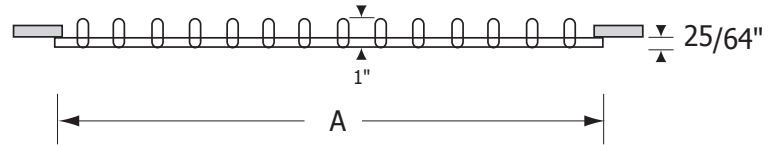


AXO-ALU-CY

Material | Powder coated stamped heavy gauge aluminum face with ABS vanes, galvanized steel plenum.

Air Pattern | Adjustable high induction swirl pattern.

Ceiling Types | Open and Closed.

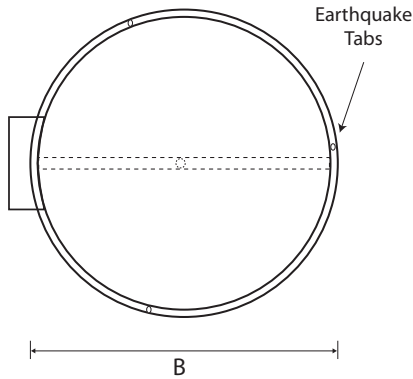
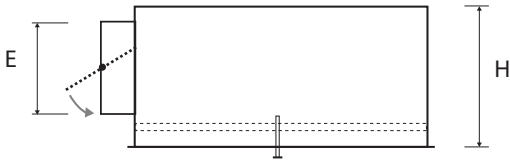


Select Model		
✓	Imperial	A (in)
	AXO-ALU-C 12	11 39/64
	AXO-ALU-C 16	15 35/64
	AXO-ALU-C 20	19 31/64
	AXO-ALU-C 25	24 13/32
	AXO-ALU-CY 25	24 13/32
	AXO-ALU-C 33	32 9/32

Select Options	
<input type="checkbox"/>	Black ABS Vanes
<input type="checkbox"/>	White ABS Vanes

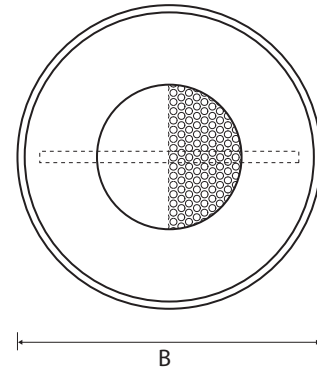
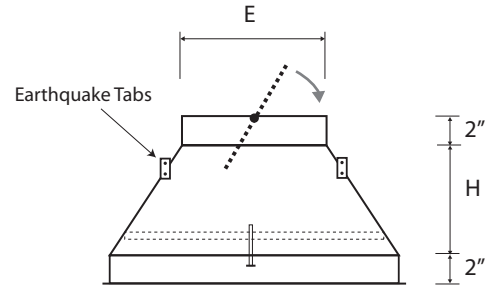
Select Finish	
<input type="checkbox"/>	Powder Coated White RAL9016
<input type="checkbox"/>	Other (specify) :

Plenum



PERFAIR-CS

Cylindrical with side duct connection, ideal for closed ceilings.



PERFAIR-CT

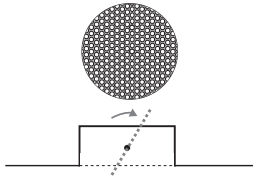
Conical with top duct connection, ideal for open ceilings with visible duct.

Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CS 1205	5	11 3/8	4 7/8	9
	PERFAIR-CS 1206	6	11 3/8	5 7/8	9
	PERFAIR-CS 1208	8	11 3/8	7 7/8	9
	PERFAIR-CS 1606	6	15 1/4	5 7/8	10
	PERFAIR-CS 1608	8	15 1/4	7 7/8	10
	PERFAIR-CS 2006	6	19	5 7/8	12
	PERFAIR-CS 2008	8	19	7 7/8	12
	PERFAIR-CS 2010	10	19	9 7/8	12
	PERFAIR-CS 2506	6	24	5 7/8	13
	PERFAIR-CS 2508	8	24	7 7/8	13
	PERFAIR-CS 2510	10	24	9 7/8	13
	PERFAIR-CS 2512	12	24	11 7/8	13
	PERFAIR-CS 3312	12	33	11 7/8	16

Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CT 1205	5	11 3/8	4 7/8	6
	PERFAIR-CT 1206	6	11 3/8	5 7/8	6
	PERFAIR-CT 1208	8	11 3/8	7 7/8	6
	PERFAIR-CT 1606	6	15 1/4	5 7/8	6
	PERFAIR-CT 1608	8	15 1/4	7 7/8	6
	PERFAIR-CT 2006	6	19	5 7/8	8
	PERFAIR-CT 2008	8	19	7 7/8	8
	PERFAIR-CT 2010	10	19	9 7/8	8
	PERFAIR-CT 2506	6	24	5 7/8	8
	PERFAIR-CT 2508	8	24	7 7/8	8
	PERFAIR-CT 2510	10	24	9 7/8	8
	PERFAIR-CT 2512	12	24	11 7/8	8
	PERFAIR-CT 3312	12	33	11 7/8	12

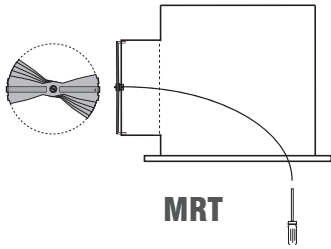
All dimensions in inches

Air Volume Dampers



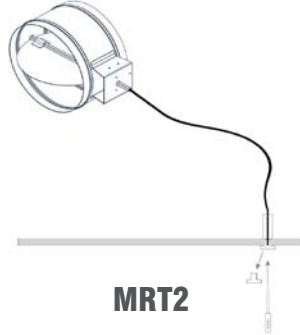
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



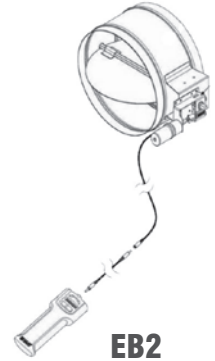
MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation		
AL		1/2" Interior Accoustical Liner
AL1		1" Interior Accoustical Liner
R6		2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper		
R		Perforated air volume damper/equalizer
MRT		Manually operated, cable thru face
MRT2		Manually operated, termination fixture
EB		Electro-balanced, battery powered, cable thru face
EB2		Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)		

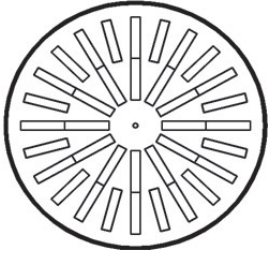
Project:
Engineer:
Architect:
Contractor:



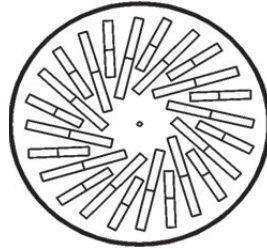
AXO-ALU-C Series Adjustable Vanes Round Swirl Diffusers



AXO-ALU-C
by MADEL®



AXO-ALU-C

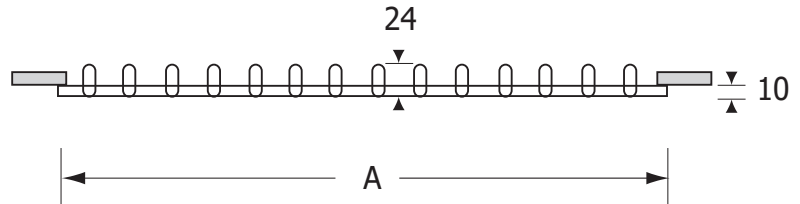


AXO-ALU-CY

Material | Powder coated stamped heavy gauge aluminum face and ABS vanes, galvanized steel plenum.

Air Pattern | Adjustable high induction swirl pattern.

Ceiling Types | Open and Closed.



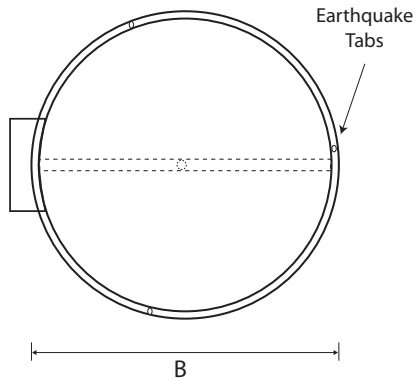
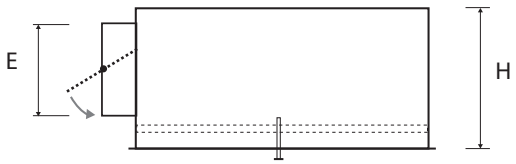
Select Model		
✓	Metric	A (mm)
	AXO-ALU-C 300	295
	AXO-ALU-C 400	395
	AXO-ALU-C 500	495
	AXO-ALU-C 625	620
	AXO-ALU-CY 625	620
	AXO-ALU-C 825	820

Select Options	
<input type="checkbox"/>	Black ABS Vanes
<input type="checkbox"/>	White ABS Vanes

Select Finish	
<input type="checkbox"/>	Powder Coated White RAL9016
<input type="checkbox"/>	Other (specify) :

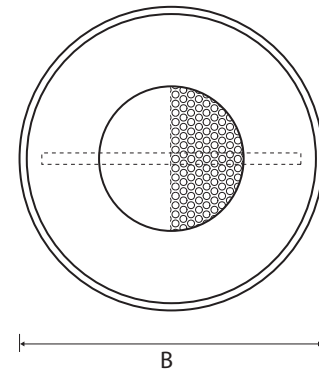
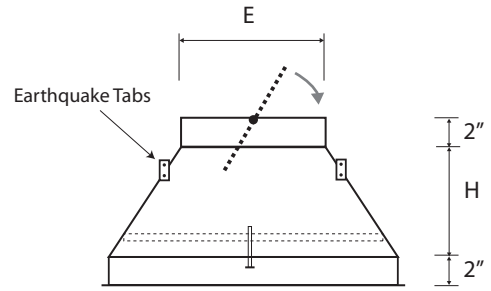


Plenum



PERFAIR-CS

Cylindrical with side duct connection, ideal for closed ceilings.



PERFAIR-CT

Conical with top duct connection, ideal for open ceilings with visible duct.

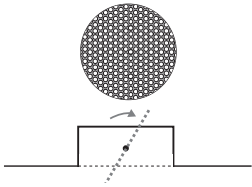
Select Model - Metric					
✓	Model	Duct Size	B	E	H
	PERFAIR-CS 300 125	125	295	123	225
	PERFAIR-CS 300 150	150	295	148	225
	PERFAIR-CS 300 200	200	295	198	225
	PERFAIR-CS 400 150	150	395	148	250
	PERFAIR-CS 400 200	200	395	198	250
	PERFAIR-CS 500 150	150	495	148	300
	PERFAIR-CS 500 200	200	495	198	300
	PERFAIR-CS 500 250	250	495	248	300
	PERFAIR-CS 625 150	150	620	148	350
	PERFAIR-CS 625 200	200	620	198	350
	PERFAIR-CS 625 250	250	620	248	350
	PERFAIR-CS 625 300	300	620	298	350
	PERFAIR-CS 825 300	300	820	298	415

All dimensions in mm

Select Model - Metric					
✓	Model	Duct Size	B	E	H
	PERFAIR-CT 300 125	125	295	123	152
	PERFAIR-CT 300 150	150	295	148	152
	PERFAIR-CT 300 200	200	295	198	152
	PERFAIR-CT 400 150	150	395	148	152
	PERFAIR-CT 400 200	200	395	198	152
	PERFAIR-CT 500 150	150	495	148	203
	PERFAIR-CT 500 200	200	495	198	203
	PERFAIR-CT 500 250	250	495	248	203
	PERFAIR-CT 625 150	150	620	148	203
	PERFAIR-CT 625 200	200	620	198	203
	PERFAIR-CT 625 250	250	620	248	203
	PERFAIR-CT 625 300	300	620	298	203
	PERFAIR-CT 825 300	300	820	298	305

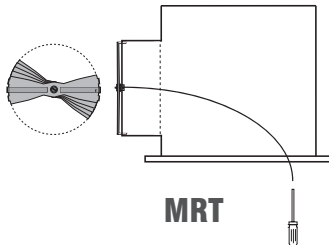
All dimensions in mm

Air Volume Dampers



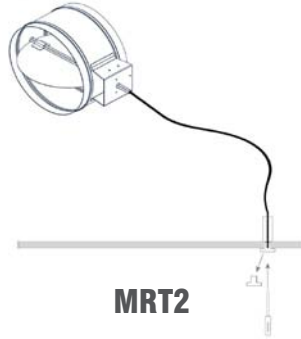
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



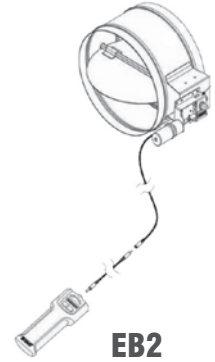
MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation		
AL		12 mm Interior Accoustical Liner
AL1		25 mm Interior Accoustical Liner
R6		50 mm Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper		
R		Perforated air volume damper/equalizer
MRT		Manually operated, cable thru face
MRT2		Manually operated, termination fixture
EB		Electro-balanced, battery powered, cable thru face
EB2		Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)		

Project:
Engineer:
Architect:
Contractor:



AXO-S Series Adjustable Vanes Square Swirl Diffusers

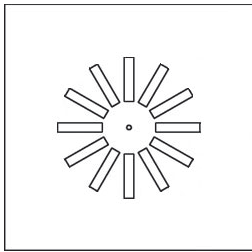
Material | Powder coated stamped heavy gauge steel face and ABS vanes, with galvanized steel plenum.

Air Pattern | Adjustable high induction swirl pattern.

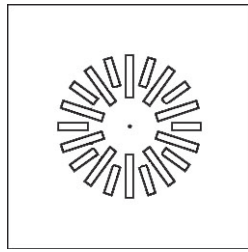
Ceiling Types | False, Open and Closed.



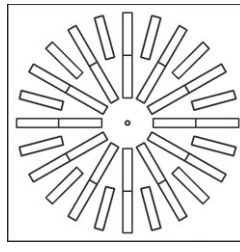
AXO-S
by MADEL®



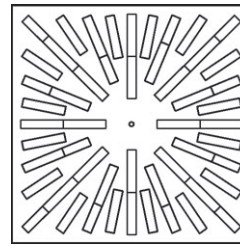
AXO-S300



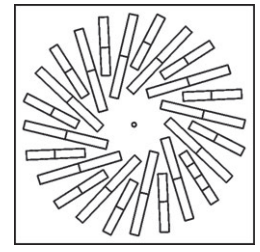
AXO-S400



AXO-S



AXO-SX

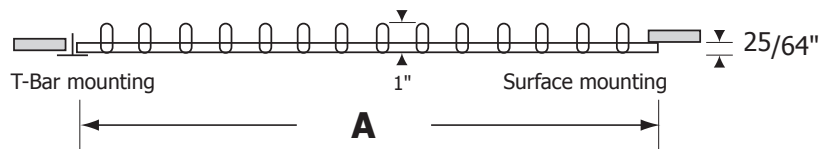


AXO-SY

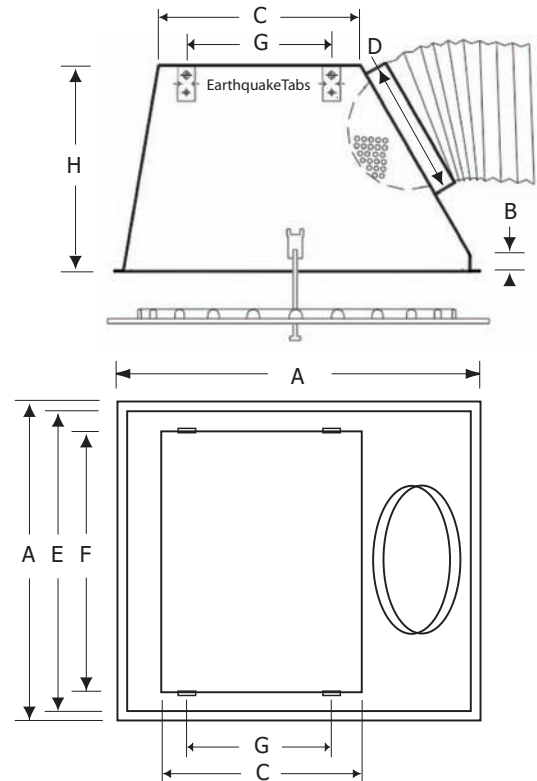
Select Model					
✓	Imperial	A (in)	✓	Metric	A (mm)
	AXO-S 12	11 ³⁹ / ₆₄ x 11 ³⁹ / ₆₄		AXO-S 300	295 x 295
	AXO-S 16	15 ³⁵ / ₆₄ x 15 ³⁵ / ₆₄		AXO-S 400	395 x 395
	AXO-S 20	19 ³¹ / ₆₄ x 19 ³¹ / ₆₄		AXO-S 500	495 x 495
	AXO-S 24	23 ³ / ₄ x 23 ³ / ₄		AXO-S 610	605 x 605
	AXO-S 32	31 ¹⁹ / ₆₄ x 31 ¹⁹ / ₆₄		AXO-S 800	795 x 795
	AXO-S300 24	23 ³ / ₄ x 23 ³ / ₄		AXO-S300 610	605 x 605
	AXO-S400 24	23 ³ / ₄ x 23 ³ / ₄		AXO-S400 610	605 x 605
	AXO-SX 24	23 ³ / ₄ x 23 ³ / ₄		AXO-SX 610	605 x 605
	AXO-SY 24	23 ³ / ₄ x 23 ³ / ₄		AXO-SY 610	605 x 605

Select Options	
<input type="checkbox"/>	Black ABS Vanes
<input type="checkbox"/>	White ABS Vanes

Select Finish	
<input type="checkbox"/>	Powder Coated White RAL9016
<input type="checkbox"/>	Other RAL :



Plenum



PERFAIR-SS

Trapezoidal with side duct connection, recommended for closed ceilings and false ceilings.

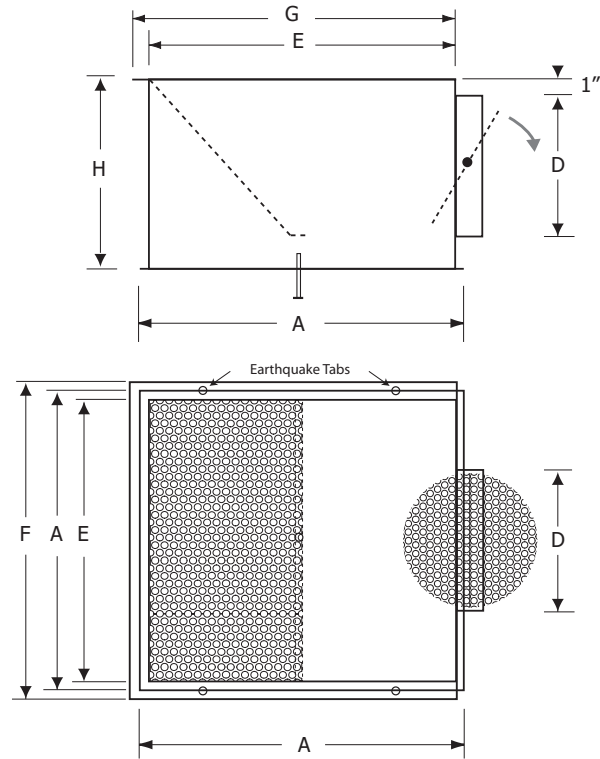
Select Model										
✓	Model	Duct Size	A	B	C	D	E	F	G	H
	PERFAIR-SS 1205	5	11 1/2	1	5 3/4	4 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1206	6	11 1/2	1	5 3/4	5 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1208	8	11 1/2	1	5 3/4	7 7/8	10 3/4	10 1/2	6 5/8	12
	PERFAIR-SS 1608	8	15 3/8	1	7 1/2	7 7/8	14 5/8	13 5/8	8 5/8	12
	PERFAIR-SS 2010	10	19 1/4	1	8 1/2	9 7/8	18 5/8	17 5/8	8 5/8	12
	PERFAIR-SS 2405	5	23 1/2	1	10 1/2	4 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2406	6	23 1/2	1	10 1/2	5 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2408	8	23 1/2	1	10 1/2	7 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2410	10	23 1/2	1	10 1/2	9 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2412	12	23 1/2	1	10 1/2	11 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 3212	12	31 1/4	1		11 7/8				

All dimensions in inches

Plenum (continued)

PERFAIR-SSS

Rectangular with side connection, recommended for open ceilings with rigid duct entering from the side.



Select Model								
✓	Model	Duct Size	A	D	E	F	G	H
	PERFAIR-SSS 1205	5	11 1/2	4 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1206	6	11 1/2	5 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1208	8	11 1/2	7 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1608	8	15 3/8	7 7/8	14 5/8	16 5/8	15 5/8	12
	PERFAIR-SSS 2010	10	19 1/4	9 7/8	18 5/8	21 5/8	19 5/8	14
	PERFAIR-SSS 2405	5	23 1/2	4 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2406	6	23 1/2	5 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2408	8	23 1/2	7 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2410	10	23 1/2	9 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2412	12	23 1/2	11 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 3212	12	31 1/4	11 7/8				

All dimensions in inches

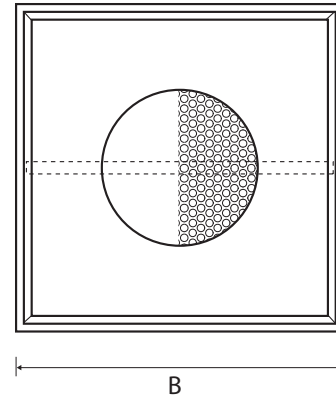
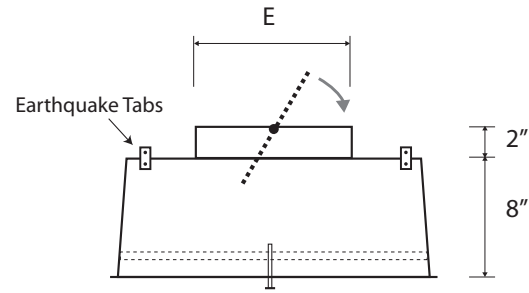
Plenum (continued)

PERFAIR-ST

Top duct connection, recommended for open ceilings with visible duct.

Select Model				
✓	Model	Duct Size	B	E
	PERFAIR-ST 1206	6	11 1/2	5 7/8
	PERFAIR-ST 1208	8	11 1/2	7 7/8
	PERFAIR-ST 2406	6	23 1/2	5 7/8
	PERFAIR-ST 2408	8	23 1/2	7 7/8
	PERFAIR-ST 2410	10	23 1/2	9 7/8
	PERFAIR-ST 2412	12	23 1/2	11 7/8
	PERFAIR-ST 3212	12	31 1/4	11 7/8

All dimensions in inches

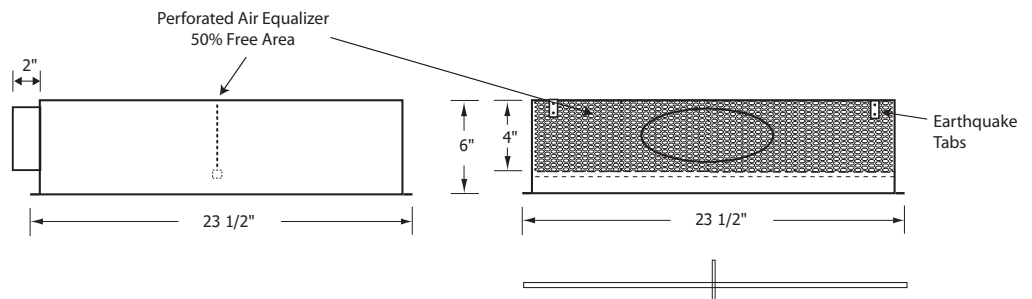
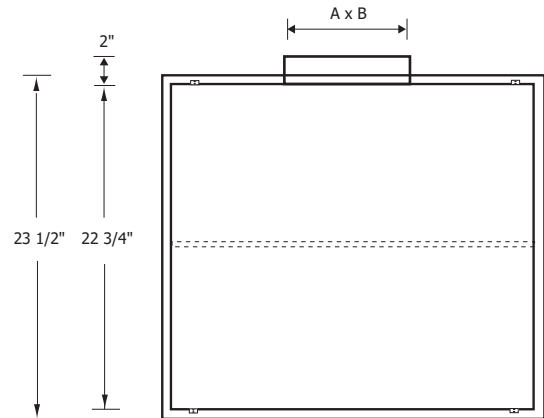


PERFAIR-XS

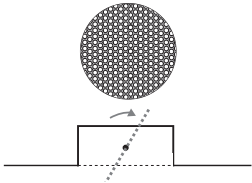
Compact plenum with side duct connection, recommended when height in the ceiling is between 6" and 14".

Select Model				
✓	Model	Duct Size	A	B
	PERFAIR-XS 2404	4	3 7/8	3 7/8
	PERFAIR-XS 2405	5	4 7/8	4 7/8
	PERFAIR-XS 2406	6	7 9/16	3 1/8
	PERFAIR-XS 2408	8	10 1/2	3 1/4

All dimensions in inches

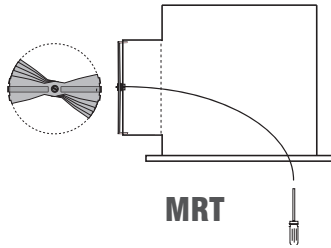


Air Volume Dampers



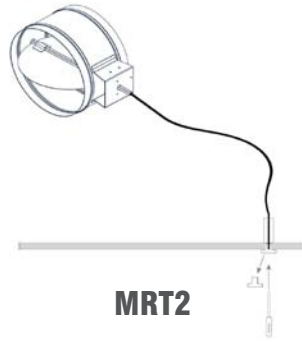
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



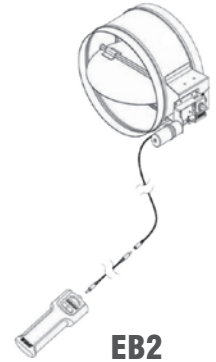
MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation		
AL		1/2" Interior Accoustical Liner
AL1		1" Interior Accoustical Liner
R6		2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper		
R		Perforated air volume damper/equalizer
MRT		Manually operated, cable thru face
MRT2		Manually operated, termination fixture
EB		Electro-balanced, battery powered, cable thru face
EB2		Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)		

Project:
Engineer:
Architect:
Contractor:

AXO-ALU-S Series Adjustable Vanes Square Swirl Diffusers

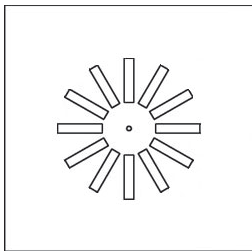
Material | Powder coated stamped heavy gauge aluminum face with ABS vanes and galvanized steel plenum.

Air Pattern | Adjustable high induction swirl pattern.

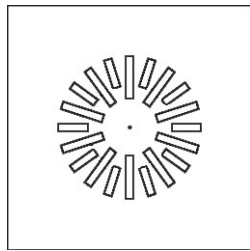
Ceiling Types | False, Open and Closed.



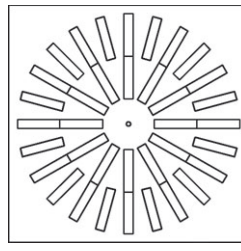
AXO-ALU-S
by MADEL®



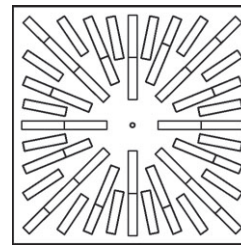
AXO-ALU-S300



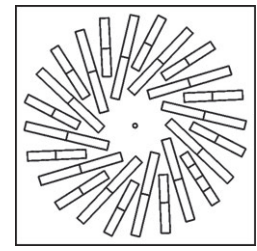
AXO-ALU-S400



AXO-ALU-S



AXO-ALU-SX

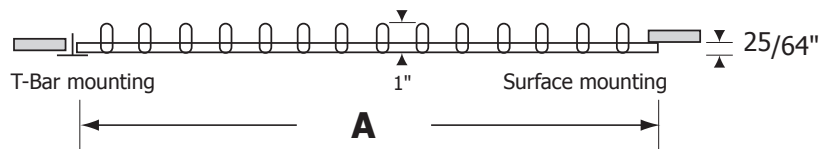


AXO-ALU-SY

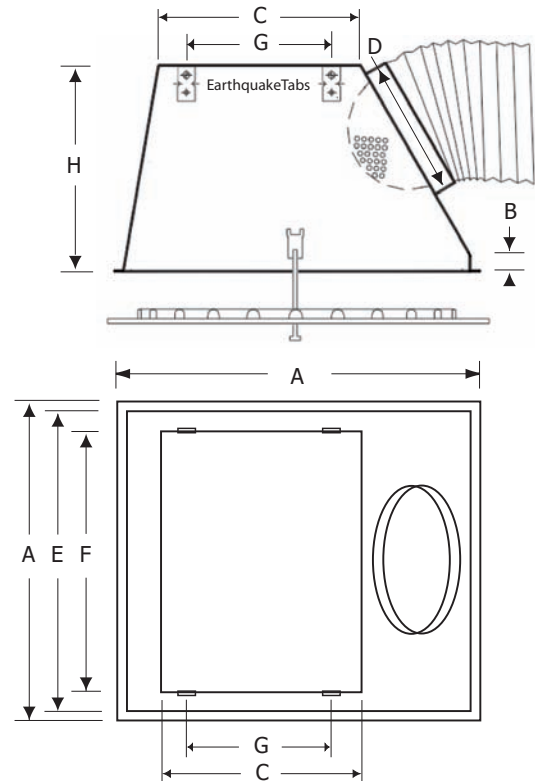
Select Model					
✓	Imperial	A (in)	✓ Metric	A (mm)	
	AXO-ALU-S 12	11 ³⁹ / ₆₄ x 11 ³⁹ / ₆₄		AXO-ALU-S 300	295 x 295
	AXO-ALU-S 16	15 ³⁵ / ₆₄ x 15 ³⁵ / ₆₄		AXO-ALU-S 400	395 x 395
	AXO-ALU-S 20	19 ³¹ / ₆₄ x 19 ³¹ / ₆₄		AXO-ALU-S 500	495 x 495
	AXO-ALU-S 24	23 ³ / ₄ x 23 ³ / ₄		AXO-ALU-S 610	605 x 605
	AXO-ALU-S 32	31 ¹⁹ / ₆₄ x 31 ¹⁹ / ₆₄		AXO-ALU-S 800	795 x 795
	AXO-ALU-S300 24	23 ³ / ₄ x 23 ³ / ₄		AXO-ALU-S300 610	605 x 605
	AXO-ALU-S400 24	23 ³ / ₄ x 23 ³ / ₄		AXO-ALU-S400 610	605 x 605
	AXO-ALU-SX 24	23 ³ / ₄ x 23 ³ / ₄		AXO-ALU-SX 610	605 x 605
	AXO-ALU-SY 24	23 ³ / ₄ x 23 ³ / ₄		AXO-ALU-SY 610	605 x 605

Select Options	
<input type="checkbox"/>	Black ABS Vanes
<input type="checkbox"/>	White ABS Vanes

Select Finish	
<input type="checkbox"/>	Powder Coated White RAL9016
<input type="checkbox"/>	Other RAL :



Plenum



PERFAIR-SS

Trapezoidal with side duct connection, recommended for closed ceilings and false ceilings.

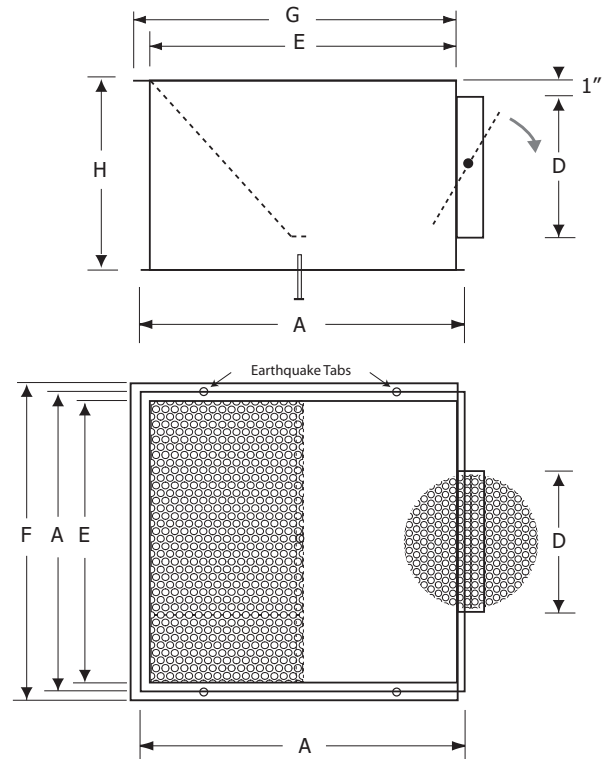
Select Model										
✓	Model	Duct Size	A	B	C	D	E	F	G	H
	PERFAIR-SS 1205	5	11 1/2	1	5 3/4	4 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1206	6	11 1/2	1	5 3/4	5 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1208	8	11 1/2	1	5 3/4	7 7/8	10 3/4	10 1/2	6 5/8	12
	PERFAIR-SS 1608	8	15 3/8	1	7 1/2	7 7/8	14 5/8	13 5/8	8 5/8	12
	PERFAIR-SS 2010	10	19 1/4	1	8 1/2	9 7/8	18 5/8	17 5/8	8 5/8	12
	PERFAIR-SS 2405	5	23 1/2	1	10 1/2	4 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2406	6	23 1/2	1	10 1/2	5 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2408	8	23 1/2	1	10 1/2	7 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2410	10	23 1/2	1	10 1/2	9 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2412	12	23 1/2	1	10 1/2	11 7/8	22 5/8	21 5/8	8 5/8	13 25/32

All dimensions in inches

Plenum (continued)

PERFAIR-SSS

Rectangular with side connection, recommended for open ceilings with rigid duct entering from the side.



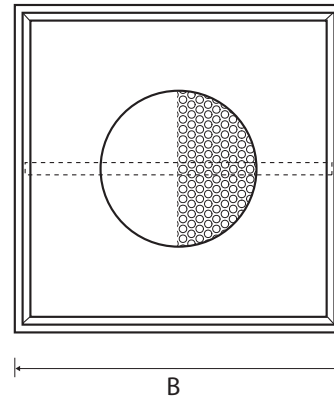
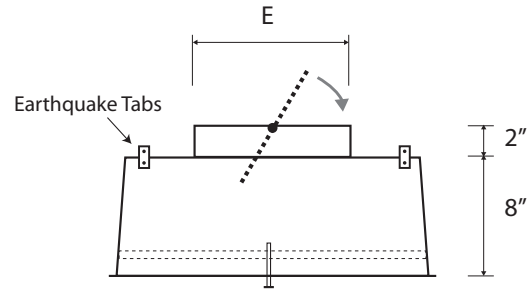
Select Model								
✓	Model	Duct Size	A	D	E	F	G	H
	PERFAIR-SSS 1205	5	11 1/2	4 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1206	6	11 1/2	5 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1208	8	11 1/2	7 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1608	8	15 3/8	7 7/8	14 5/8	16 5/8	15 5/8	12
	PERFAIR-SSS 2010	10	19 1/4	9 7/8	18 5/8	21 5/8	19 5/8	14
	PERFAIR-SSS 2405	5	23 1/2	4 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2406	6	23 1/2	5 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2408	8	23 1/2	7 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2410	10	23 1/2	9 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2412	12	23 1/2	11 7/8	22 5/8	24 5/8	23 5/8	14

All dimensions in inches

Plenum (continued)

PERFAIR-ST

Top duct connection, recommended for open ceilings with visible duct.



Select Model				
✓	Model	Duct Size	B	E
	PERFAIR-ST 1206	6	11 1/2	5 7/8
	PERFAIR-ST 1208	8	11 1/2	7 7/8
	PERFAIR-ST 2406	6	23 1/2	5 7/8
	PERFAIR-ST 2408	8	23 1/2	7 7/8
	PERFAIR-ST 2410	10	23 1/2	9 7/8
	PERFAIR-ST 2412	12	23 1/2	11 7/8

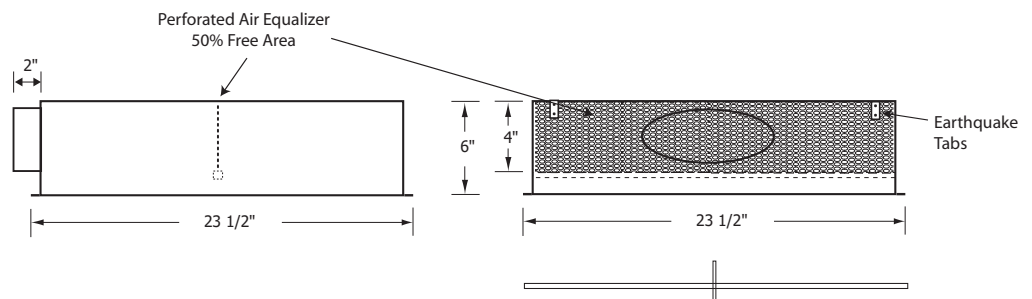
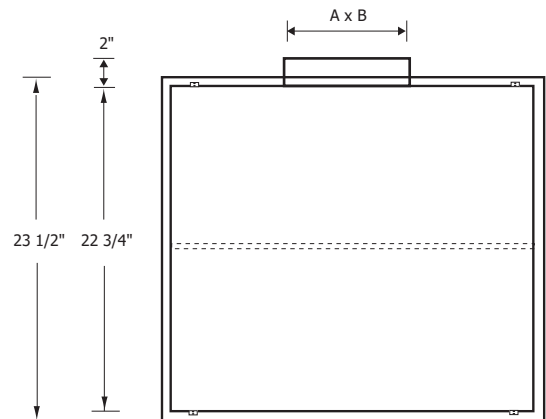
All dimensions in inches

PERFAIR-XS

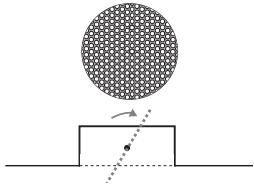
Compact plenum with side duct connection, recommended when height in the ceiling is between 6" and 14".

Select Model				
✓	Model	Duct Size	A	B
	PERFAIR-XS 2404	4	3 7/8	3 7/8
	PERFAIR-XS 2405	5	4 7/8	4 7/8
	PERFAIR-XS 2406	6	7 9/16	3 1/8
	PERFAIR-XS 2408	8	10 1/2	3 1/4

All dimensions in inches

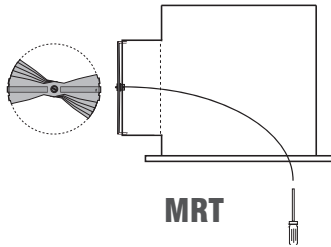


Air Volume Dampers



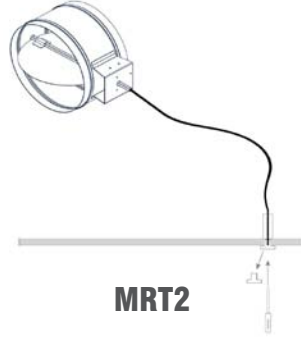
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation		
AL		1/2" Interior Accoustical Liner
AL1		1" Interior Accoustical Liner
R6		2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper		
R		Perforated air volume damper/equalizer
MRT		Manually operated, cable thru face
MRT2		Manually operated, termination fixture
EB		Electro-balanced, battery powered, cable thru face
EB2		Electro-balanced, battery powered, termination fixture

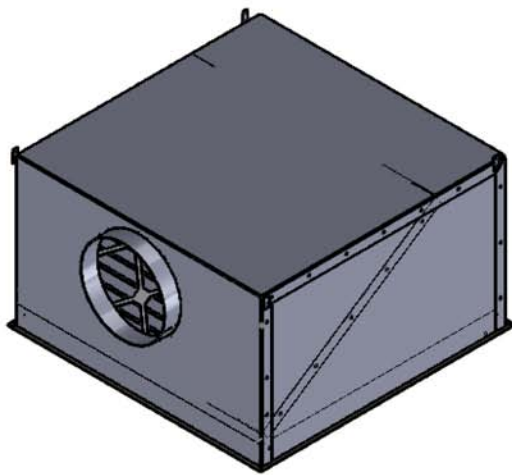
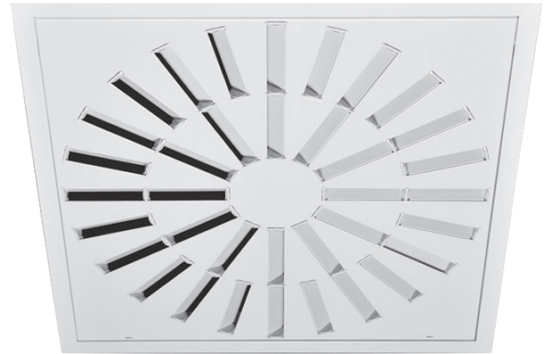
Cable Length (MRT2 or EB2)		

Project:
Engineer:
Architect:
Contractor:

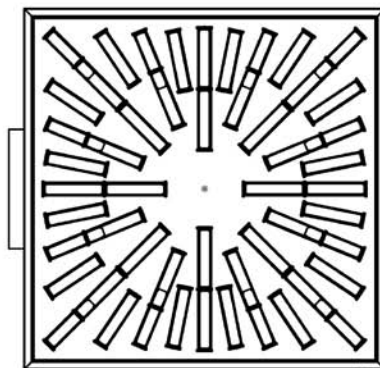
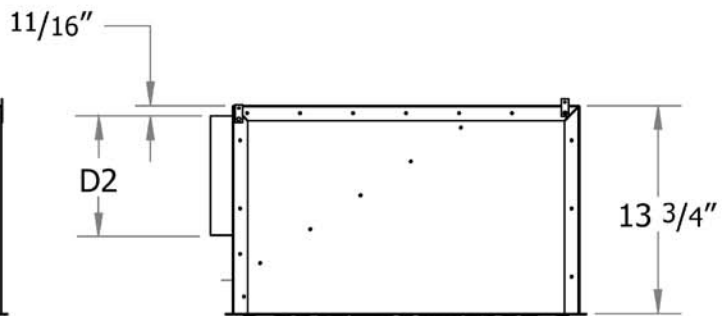
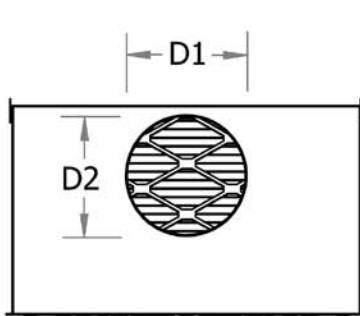
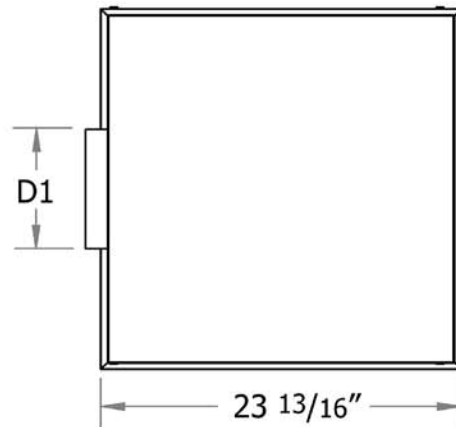
AXO-F Series High Induction Swirl Filter Diffusers

Material | Powder coated stamped heavy gauge steel or aluminum face with black or white ABS vanes, galvanized steel plenum and 20" x 20" x 2" pleated filter

Air Pattern | Adjustable high induction swirl pattern



AXO-S-F



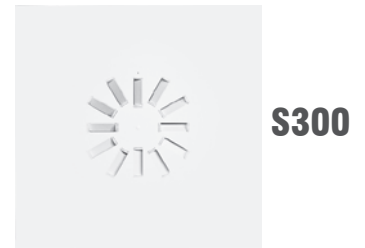
SUBMITTAL

AXO-F

REV 1 - PAGE 2/2



Select Model				
Model		Material	CFM Min	CFM Max
	AXO-S300-F	Steel	50	130
	AXO-S400-F	Steel	100	250
	AXO-S-F	Steel	230	500
	AXO-SX-F	Steel	300	550
	AXO-S300-ALU-F	Aluminum	50	130
	AXO-S400-ALU-F	Aluminum	100	250
	AXO-S-ALU-F	Aluminum	230	500
	AXO-SX-ALU-F	Aluminum	300	550



Select Dimension				
Dimension	Face	D1	D2	
2406	23 7/8" x 23 7/8"	5 7/8"	5 7/8"	
2407	23 7/8" x 23 7/8"	6 7/8"	6 7/8"	
2408	23 7/8" x 23 7/8"	7 7/8"	7 7/8"	
2410	23 7/8" x 23 7/8"	9 7/8"	9 7/8"	
2412	23 7/8" x 23 7/8"	16"	8"	

Filter	
UVFILTER-W-M9	2" MERV-9A White Pleated Filter
UVFILTER-C-M7	2" MERV-7 Carbon Pleated Filter

Select Finish	
	Powder Coated White RAL9016
	Other RAL :

Project:
Engineer:
Architect:
Contractor:

AXO-HEPA Series HEPA Filter Terminal High Induction Swirl Diffuser

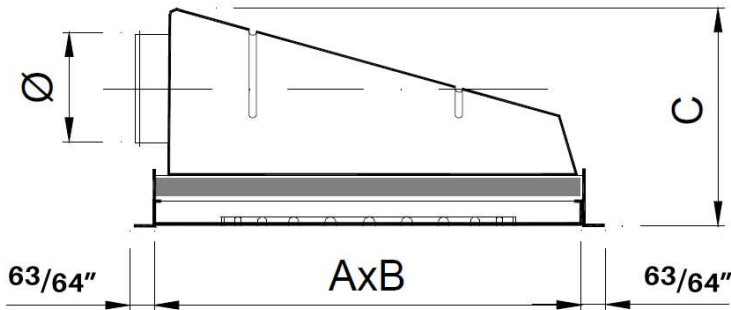
Material | Powder coated stamped heavy gauge steel face with plastic vanes, polystyrene plenum box and H14 HEPA filter

Air Pattern | High induction swirl pattern, directional, or downward vertical

Ceiling Types | Closed



**AXO-HEPA
(UFA-AXO)**



Select Model					
✓	Model	A	B	C	Ø
	AXO-HEPA 330	12 63/64"	12 63/64"	13 37/64"	6 3/4"
	AXO-HEPA 482	18 31/32"	18 31/32"	13 37/64"	6 3/4"
	AXO-HEPA 538	21 3/16"	21 3/16"	14 3/8"	7 3/4"
	AXO-HEPA 635	25"	25"	14 3/8"	7 3/4"

Select Finish	
	Powder Coated White RAL9010
	Anodised silver matte (AA)
	Other RAL:

Project:

Engineer:

Architect:

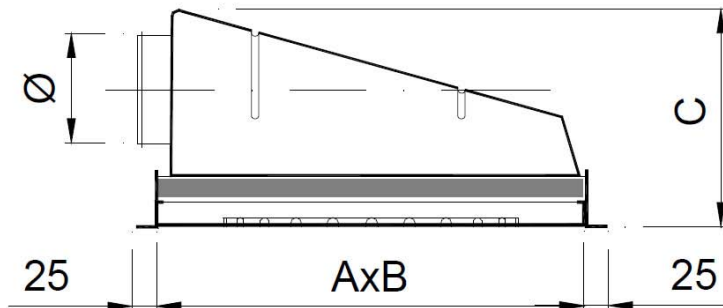
Contractor:

AXO-HEPA Series HEPA Filter Terminal High Induction Swirl Diffuser

Material | Powder coated stamped heavy gauge steel face with plastic vanes, polystyrene plenum box and H14 HEPA filter

Air Pattern | High induction swirl pattern, directional, or downward vertical

Ceiling Types | Closed



**AXO-HEPA
(UFA-AXO)**



Select Model					
✓	Model	A	B	C	Ø
	AXO-HEPA 330	330	330	345	173
	AXO-HEPA 482	482	482	345	173
	AXO-HEPA 538	538	538	190	198
	AXO-HEPA 635	635	635	365	198

Select Finish	
	Powder Coated White RAL9010
	Anodised silver matte (AA)
	Other RAL:

Project:

Engineer:

Architect:

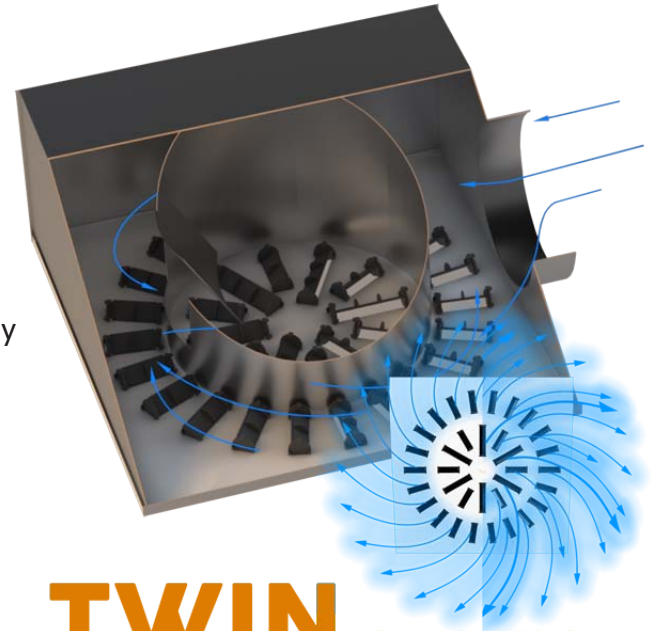
Contractor:

AXO-TWIN Series Dual Throw High Induction Swirl Diffuser For VAV Systems

Material | Powder coated heavy gauge steel with ABS vanes and galvanized steel plenum

Air Pattern | 360° swirl diffusion with throw distance automatically adjusted based on air volume

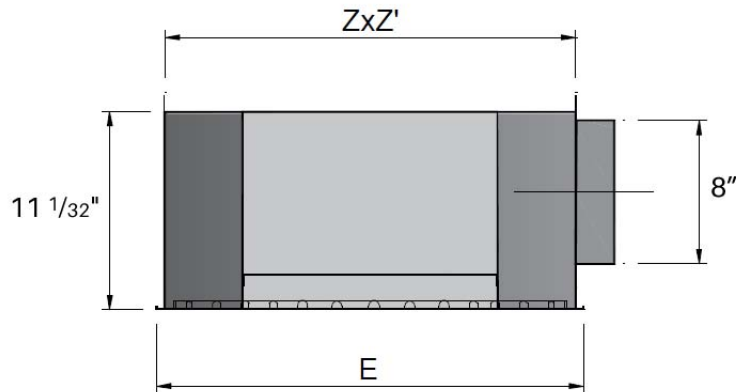
Ceiling Types | Suitable for open, false and closed ceilings



TWIN DUAL FLOW

AXO-TWIN
by MADEL®

Patent Pending



Select Model					
✓	Model	Duct	E	Z	Z'
	AXO-TWIN	8	23 3/4	22 43/64	22 23/64

All dimensions in inches (in)

Vanes Color	
AB	White
AN	Black

Select Finish	
	Powder Coated White (RAL 9016)
	Powder Coated Off White (RAL 9010)
	Other RAL (specify) :

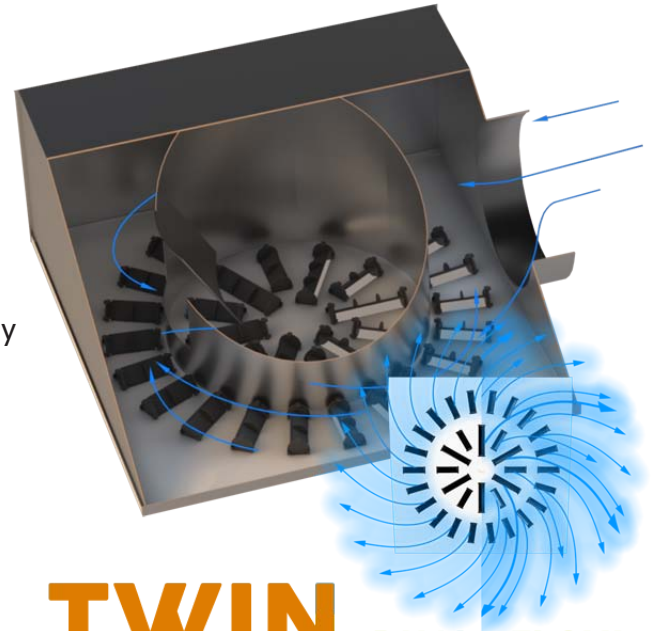
Project:
Engineer:
Architect:
Contractor:

AXO-TWIN Series Dual Throw High Induction Swirl Diffuser For VAV Systems

Material | Powder coated heavy gauge steel with ABS vanes and galvanized steel plenum

Air Pattern | 360° swirl diffusion with throw distance automatically adjusted based on air volume

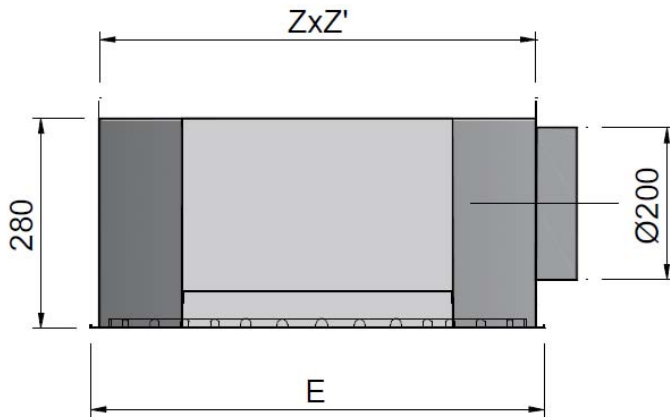
Ceiling Types | Suitable for open, false and closed ceilings



TWIN DUAL FLOW

AXO-TWIN
by MADEL®

Patent Pending



Select Model					
✓	Model	Duct	E	Z	Z'
	AXO-TWIN 610	200	605	576	568

All dimensions in mm

Vanes Color	
AB	White
AN	Black

Select Finish	
	Powder Coated White (RAL 9016)
	Powder Coated Off White (RAL 9010)
	Other RAL (specify) :

Project:

Engineer:

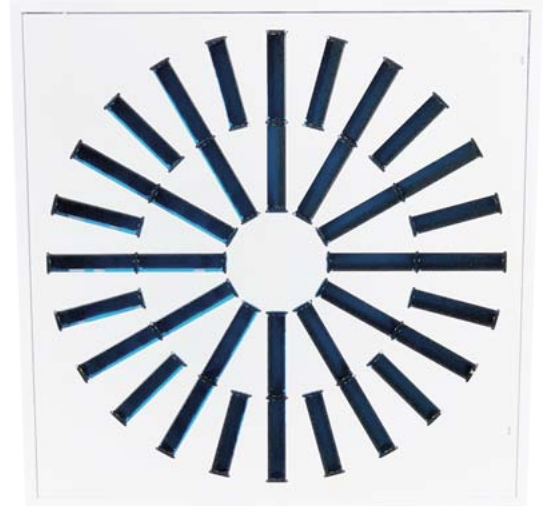
Architect:

Contractor:

AXO-UV Series High Induction Swirl UV Diffusers

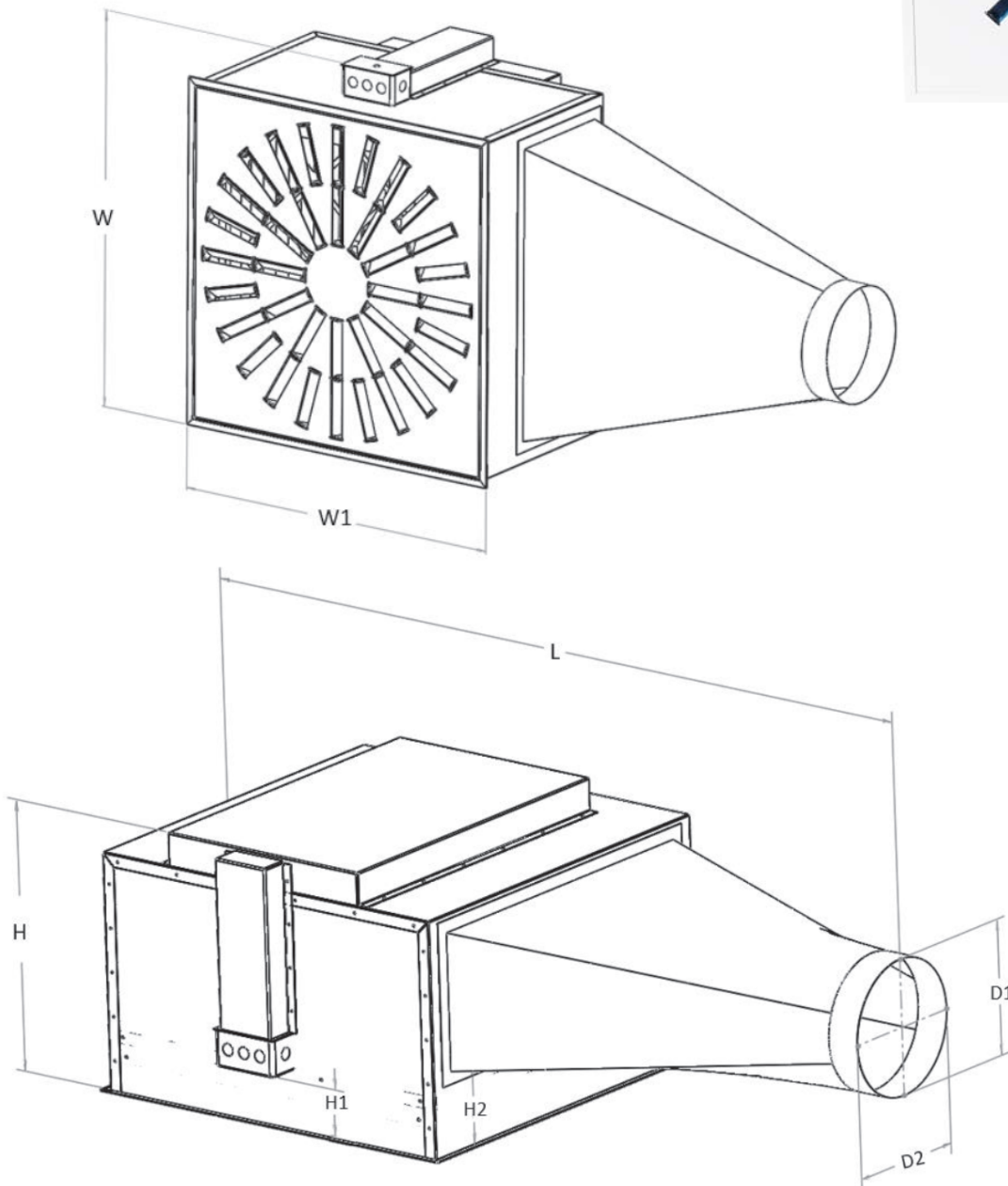
Material | Powder coated stamped heavy gauge steel or aluminum face with black ABS vanes, aluminum plenum, UVC lamp and 2" UV-resistant pleated filter

Air Pattern | Adjustable high induction swirl pattern



AXO-UV

Patent Pending



Dimensions	
W	25 2/3"
W1	23 7/8"
H	15 7/8"
H1	3 9/16"
H2	4 3/4"
L	47 1/2"

SUBMITTAL

AXO-UV

REV 3 - PAGE 2/2



Select Model				
Model		Material	CFM Min	CFM Max
	AXO-S300-UV	Steel	50	130
	AXO-S400-UV	Steel	100	250
	AXO-S-UV	Steel	230	500
	AXO-SX-UV	Steel	300	550
	AXO-S300-ALU-UV	Aluminum	50	130
	AXO-S400-ALU-UV	Aluminum	100	250
	AXO-S-ALU-UV	Aluminum	230	500
	AXO-SX-ALU-UV	Aluminum	300	550



S300



S400

Select Dimension				
Dimension	Face	D1	D2	
2406	23 7/8" x 23 7/8"	5 7/8"	5 7/8"	
2407	23 7/8" x 23 7/8"	6 7/8"	6 7/8"	
2408	23 7/8" x 23 7/8"	7 7/8"	7 7/8"	
2410	23 7/8" x 23 7/8"	11"	8"	
2412	23 7/8" x 23 7/8"	16"	8"	



S



SX

Filter	
UVFILTER-W-M9	2" MERV-9 UV Resistant White Pleated Filter
UVFILTER-C-M7	2" MERV-7 UV Resistant Carbon Pleated Filter

Select Finish	
	Powder Coated White RAL9016
	Other RAL :



Project:
Engineer:
Architect:
Contractor:

AXP Series Fixed Blades Round Swirl Diffusers

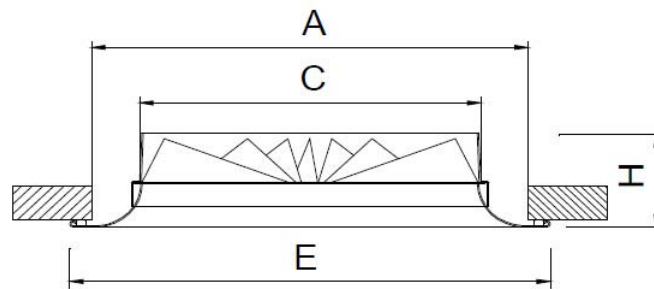
Material | Powder coated heavy gauge spun aluminum

Air Pattern | fixed 360° swirl diffusion

Ceiling Types | Open and Closed



AXP
by MADEL®



Select Model						
✓	Model	Duct	A	C	E	H
	AXP 05	5	7 9/16	4 25/32	9 1/16	2 7/8
	AXP 06	6	8 15/16	5 7/8	10 5/16	4 29/64
	AXP 08	8	10 5/8	7 51/64	12 1/64	2 61/64
	AXP 10	10	12 19/32	9 49/64	13 31/32	2 61/64
	AXP 12	12	15 5/64	11 7/8	16 29/64	4 27/32

All dimensions in inches (in)

Note: AXP 06 and AXP 12 have Metric to Imperial transitions installed. Transitions are made of unpainted stainless steel.

Options	
EQ	Air Equalizing Grid (Perforated Plate)
WT	Transition Powder Coated White (6" and 12" only)

Select Finish	
	Powder Coated White (RAL 9016)
	Mill Finish
	Other RAL (specify) :

Project:
Engineer:
Architect:
Contractor:

AXP-MOD Series Fixed Blades Round Swirl Diffusers in Lay-in Panel

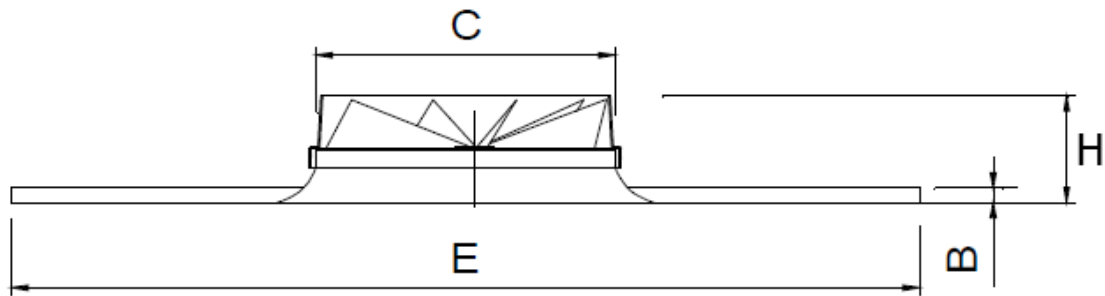
Material | Powder coated heavy gauge spun aluminum

Air Pattern | fixed 360° swirl diffusion

Ceiling Types | False Ceiling



AXP-MOD
by MADEL®

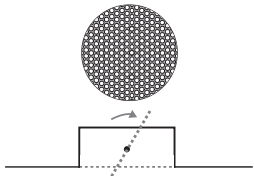


Select Model						
✓	Model	Duct	B	C	E	H
	AXP-MOD 05	5	15/32	4 25/32	23 3/4	3 11/32
	AXP-MOD 06	6	15/32	5 7/8	23 3/4	4 27/32
	AXP-MOD 08	8	15/32	7 51/64	23 3/4	3 11/32
	AXP-MOD 10	10	15/32	9 49/64	23 3/4	3 11/32
	AXP-MOD 12	12	15/32	11 7/8	23 3/4	4 27/32

All dimensions in inches (in)

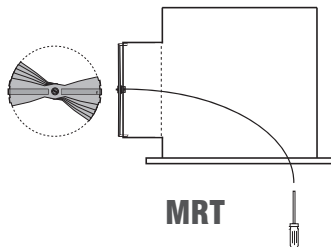
Note: AXP-MOD 06 and AXP-MOD 12 have Metric to Imperial transitions installed in the collar. Transitions are made of unpainted stainless steel.

Air Volume Dampers



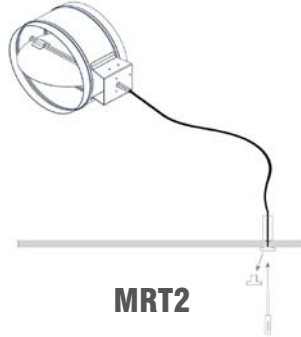
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



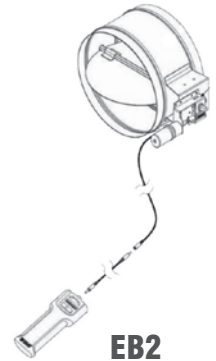
MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Options	
EQ	Air Equalizing Grid (Perforated Plate)
WT	Transition Powder Coated White (6" and 12" only)

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)	

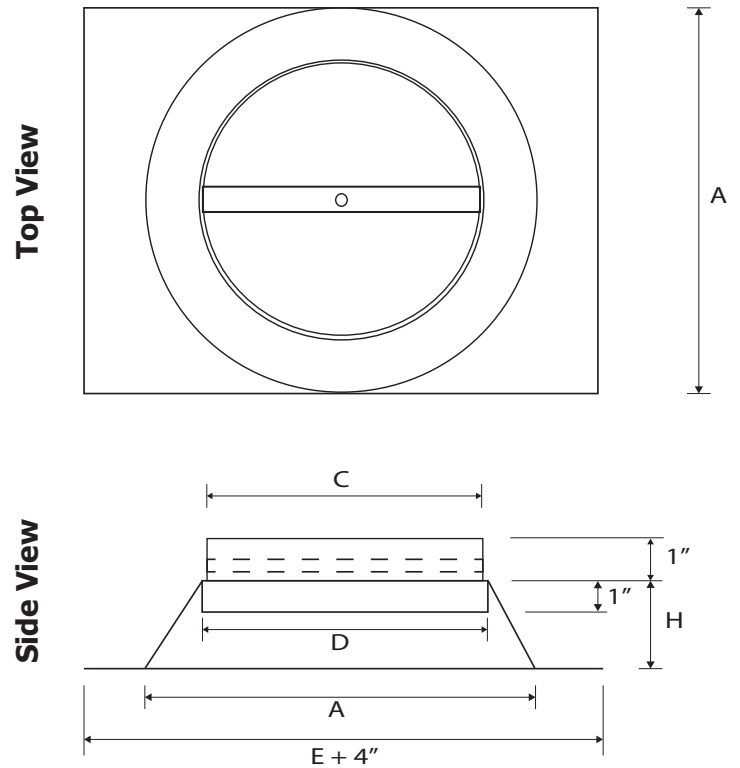
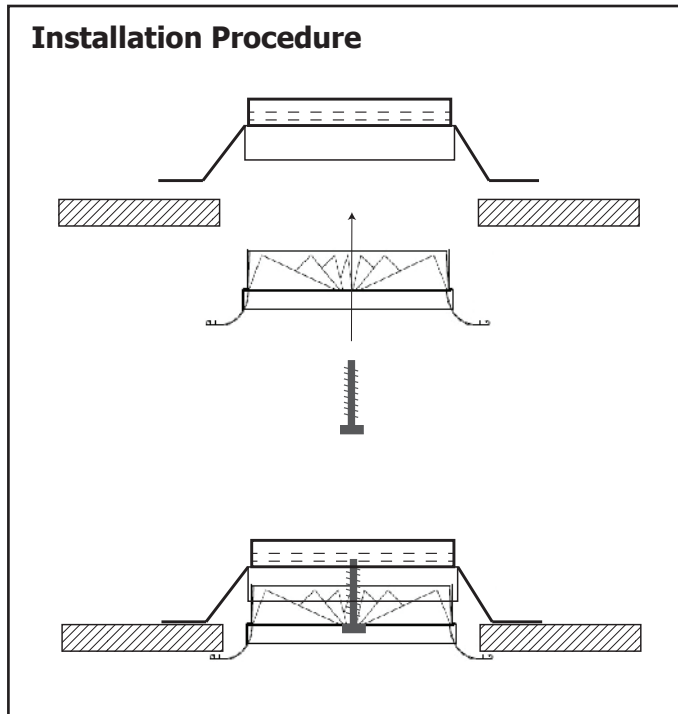
Select Finish	
	Powder Coated White (RAL 9016)
	Mill Finish
	Other RAL (specify) :

Project:
Engineer:
Architect:
Contractor:

DAAXP Series Drywall Adaptor For AXP Round Swirl Diffusers

Material | heavy gauge steel

Ceiling Types | Drywall



Select Model							
✓	Model	Duct	A	C	D	E	H
	DAAXP 05	5	7 9/16	4 7/8	5	9 1/16	2 1/2
	DAAXP 06	6	8 15/16	5 7/8	6 1/2	10 5/16	2 1/2
	DAAXP 08	8	10 5/8	7 7/8	8	12 1/64	2 1/2
	DAAXP 10	10	12 19/32	9 7/8	10	13 31/32	2 1/2
	DAAXP 12	12	15 5/64	11 7/8	12 1/2	16 29/64	3

All dimensions in inches (in)

Project:
Engineer:
Architect:
Contractor:



AXP Series Fixed Blades Round Swirl Diffusers

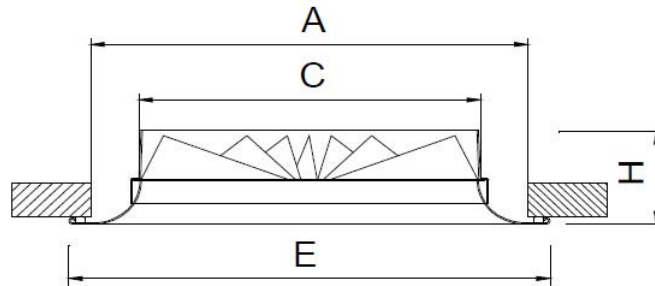
Material | Powder coated heavy gauge spun aluminum

Air Pattern | fixed 360° swirl diffusion

Ceiling Types | Open and Closed



AXP
by MADEL®



Select Model						
✓	Model	Duct	A	C	E	H
	AXP 125	125	192	123	230	75
	AXP 160	160	227	158	262	75
	AXP 200	200	270	198	305	75
	AXP 250	250	320	248	355	75
	AXP 315	315	383	313	418	85

All dimensions in millimeters (mm)

Options	
EQ	Air Equalizing Grid (Perforated Plate)

Select Finish	
	Powder Coated White (RAL 9016)
	Mill Finish
	Other RAL (specify) :

Project:
Engineer:
Architect:
Contractor:

BWC Series Steel Adjustable Round Ventilation Valves

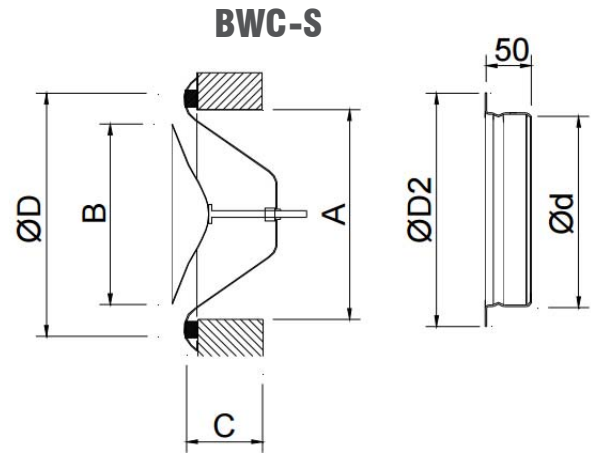
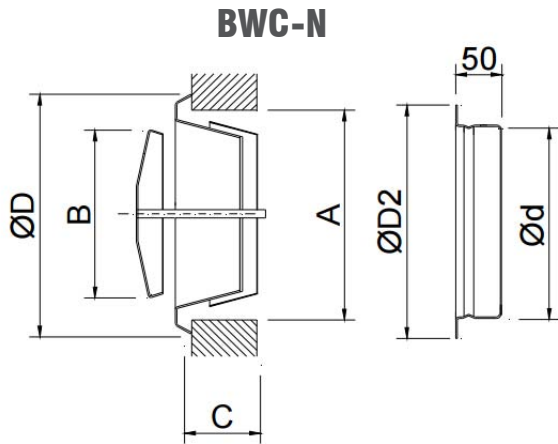
Material | Powder coated heavy gauge steel.

Air Pattern | 360° diffusion with flow adjustment.

Ceiling Types | Drywall and duct.



BWC-N



Select Model							
✓	Model	A	B	C	Ød	ØD2	ØD
	BWC-N 04	4.09"	2.95"	1.57"	3.9"	4.92"	5.39"
	BWC-N 05	5.08"	3.9"	1.81"	4.88"	5.91"	6.46"
	BWC-N 06	6.65"	5.08"	2.13"	5.9"	6.91"	7.75"
	BWC-N 08	8.23"	6.18"	2.48"	7.83"	8.85"	9.76"
	BWC-S 04	4.09"	2.95"	1.57"	3.9"	4.8"	5.51"
	BWC-S 05	5.08"	3.9"	1.81"	4.88"	5.83"	6.69"
	BWC-S 06	6.65"	4.69"	2.13"	5.9"	6.91"	7.85"
	BWC-S 08	8.23"	6.18"	2.52"	7.83"	8.85"	10"

All dimensions in inches

Select Finish	
	Powder Coated White RAL9016
	Other (specify) :

Project:
Engineer:
Architect:
Contractor:

DCG Series Manually Adjustable Aluminum Round Diffusers

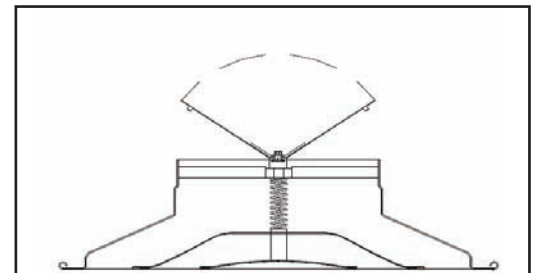
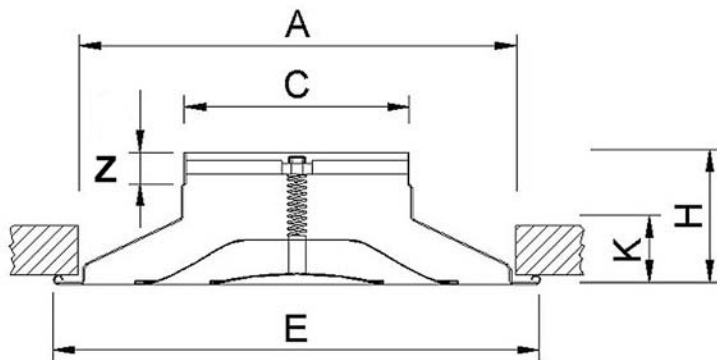
Material | Powder coated heavy gauge spun aluminum.

Air Pattern | 360° diffusion with vertical throw adjustment.

Ceiling Types | Open and Closed.



DCG
by MADEL®



DCG-R3G

Integrated Butterfly Volume Damper
(N/A for 6" and 12")



OBD

Opposed Blade
Damper



RSBD

Radial Sliding
Blade Damper

(both only for 6" and 12")

Select Model							
✓	Model	A	C	E	H	K	Z
	DCG 06	11 59/64	5 3/4	13 5/16	4 15/16	1 47/64	1
	DCG 08	15 5/32	7 3/4	16 47/64	4 17/32	2 9/32	1
	DCG 10	18 17/64	9 3/4	19 3/8	4 31/64	2 1/4	1
	DCG 12	22 13/64	11 3/4	23 17/64	6 19/32	3 5/32	1
	DCG 14	24 13/16	13 29/32	26 1/16	5 33/64	3 17/64	1
	DCG 16	24 13/16	15 43/64	26 1/16	5 5/32	2 59/64	1
	DCG 18	31 7/32	17 19/32	32 3/4	6 13/16	4 11/64	1
	DCG 20	31 7/32	19 9/16	32 3/4	6 27/64	3 13/16	1

All dimensions in inches

Select Model	
✓	Model
	DCG-R3G 08
	DCG-R3G 10
	DCG-R3G 14
	DCG-R3G 16
	DCG-R3G 18
	DCG-R3G 20

Select Model	
✓	Model
	DCG-OBD 06
	DCG-OBD 12
Select Model	
✓	Model
	DCG-RSBD 06
	DCG-RSBD 12

Select Finish	
	Powder Coated White
	Other (specify) :

Project:
Engineer:
Architect:
Contractor:

DCG Series Manually Adjustable Aluminum Round Diffuser

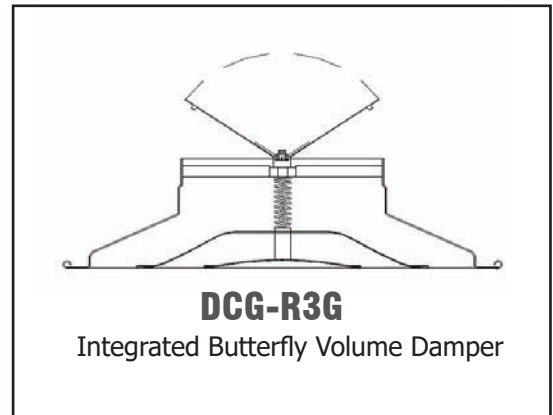
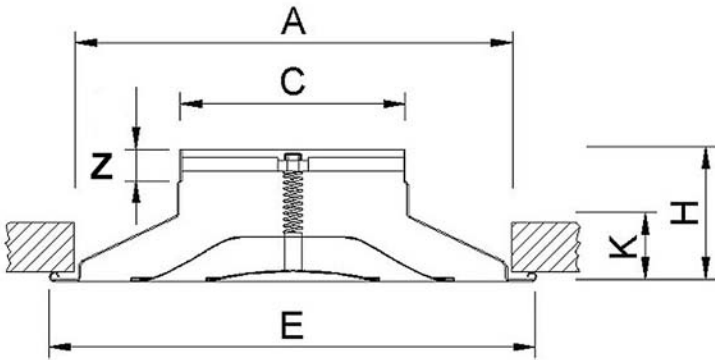
Material | Powder coated heavy gauge spun aluminum.

Air Pattern | 360° diffusion with vertical throw adjustment.

Ceiling Types | Open and Closed.



DCG
by MADEL®



Select Model										
✓	Model	Duct	A	C	E	H	K	Z	Model	✓
	DCG 160	160	303	157	331	101	44	25	DCG-R3G 160	
	DCG 200	200	385	197	425	115	58	25	DCG-R3G 200	
	DCG 250	250	464	247	492	114	57	25	DCG-R3G 250	
	DCG 315	315	564	313	591	137	80	25	DCG-R3G 315	
	DCG 355	355	630	353	662	140	83	25	DCG-R3G 355	
	DCG 400	400	630	398	662	131	74	25	DCG-R3G 400	
	DCG 450	450	793	447	832	173	106	25	DCG-R3G 450	
	DCG 500	500	793	497	832	163	97	25	DCG-R3G 500	

All dimensions in millimeters (mm)

Select Finish	
	Powder Coated White RAL9016
	Other (specify) :

Project:
Engineer:
Architect:
Contractor:

DCG-ACTIF Series Thermodynamic Aluminum Round Diffuser

Material | Powder coated heavy gauge spun aluminum.

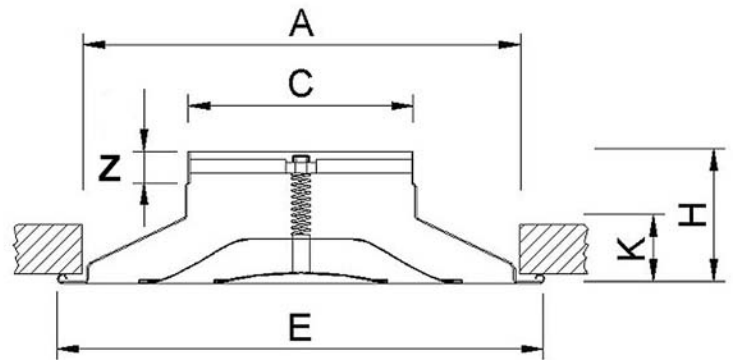
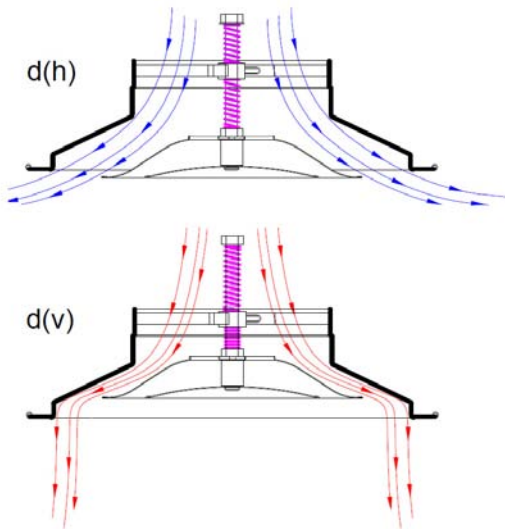
Air Pattern | 360° diffusion with horizontal to vertical flow adjustment, autonomously adjusted by means of a thermodynamic spring.

Ceiling Types | Open and Closed.



DCG-ACTIF
by MADEL®

ACTIF



Select Model								
✓	Model	Duct	A	C	E	H	K	Z
	DCG-ACTIF 160	6	11 59/64	5 3/4	13 5/16	4 15/16	1 47/64	1
	DCG-ACTIF 200	8	15 5/32	7 3/4	16 47/64	4 17/32	2 9/32	1
	DCG-ACTIF 250	10	18 17/64	9 3/4	19 3/8	4 31/64	2 1/4	1
	DCG-ACTIF 315	12	22 13/64	11 3/4	23 17/64	6 19/32	3 5/32	1

All dimensions in inches (in)

Select Finish	
<input type="checkbox"/>	Powder Coated White RAL9016
<input type="checkbox"/>	Other (specify) :

Project:
Engineer:
Architect:
Contractor:

DCG-ACTIF Series Thermodynamic Aluminum Round Diffuser

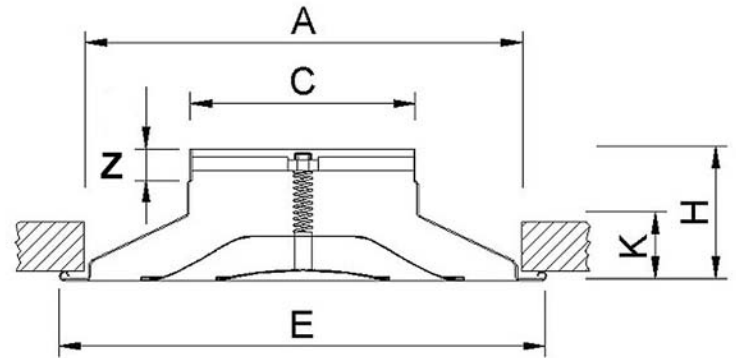
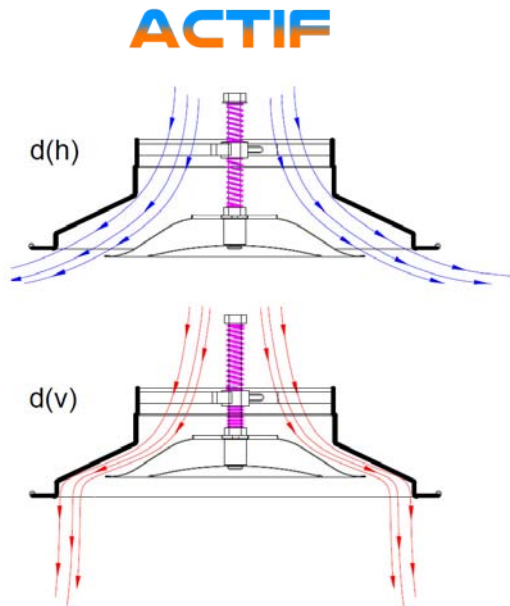
Material | Powder coated heavy gauge spun aluminum.

Air Pattern | 360° diffusion with horizontal to vertical flow adjustment, autonomously adjusted by means of a thermodynamic spring.

Ceiling Types | Open and Closed.



DCG-ACTIF
by MADEL®



Select Model

✓	Model	Duct	A	C	E	H	K	Z
	DCG-ACTIF 160	160	303	157	331	101	44	25
	DCG-ACTIF 200	200	385	197	425	115	58	25
	DCG-ACTIF 250	250	464	247	492	114	57	25
	DCG-ACTIF 315	315	564	313	591	137	80	25

All dimensions in millimeters (mm)

Select Finish

	Powder Coated White RAL9016
	Other (specify) :

Project:
Engineer:
Architect:
Contractor:



DCG-M150-L Series Actuator Ready Adjustable Aluminum Round Diffusers

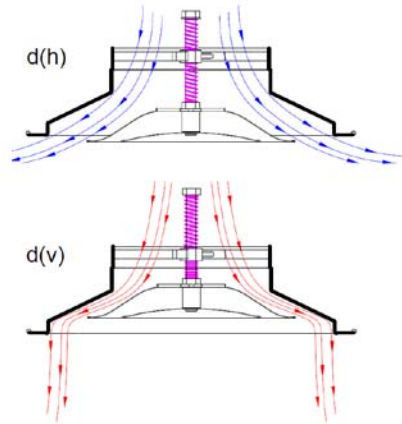
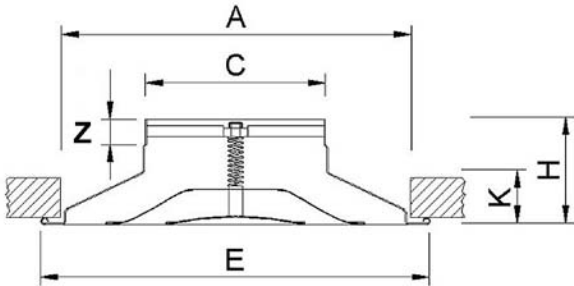
Material | Powder coated heavy gauge spun aluminum.

Air Pattern | 360° diffusion with vertical throw adjustment.

Ceiling Types | Open and Closed.



DCG-M150-L
by MADEL®



Select Model							
✓	Model	A	C	E	H	K	Z
	DCG-M150-L 06	11 59/64	5 3/4	13 5/16	4 15/16	1 47/64	1
	DCG-M150-L 08	15 5/32	7 3/4	16 47/64	4 17/32	2 9/32	1
	DCG-M150-L 10	18 17/64	9 3/4	19 3/8	4 31/64	2 1/4	1
	DCG-M150-L 12	22 13/64	11 3/4	23 17/64	6 19/32	3 5/32	1
	DCG-M150-L 14	24 13/16	13 29/32	26 1/16	5 33/64	3 17/64	1
	DCG-M150-L 16	24 13/16	15 43/64	26 1/16	5 5/32	2 59/64	1
	DCG-M150-L 18	31 7/32	17 19/32	32 3/4	6 13/16	4 11/64	1
	DCG-M150-L 20	31 7/32	19 9/16	32 3/4	6 27/64	3 13/16	1

All dimensions in inches

Select Finish	
<input type="checkbox"/>	Powder Coated White
<input type="checkbox"/>	Other (specify) :

Project:
Engineer:
Architect:
Contractor:

DSO Series Manually Adjustable Aluminum Round Diffusers

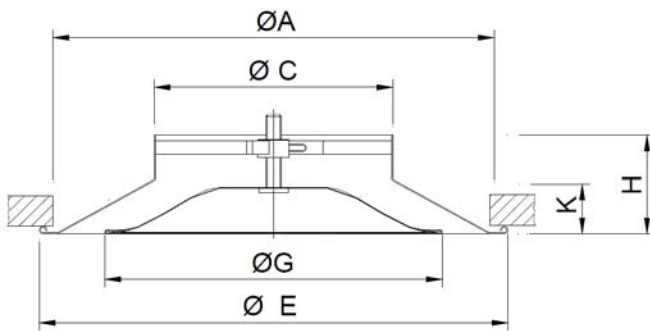
Material | Powder coated heavy gauge spun aluminum.

Air Pattern | 360° diffusion with vertical throw adjustment.

Ceiling Types | Open and Closed.



DSO
by MADEL®

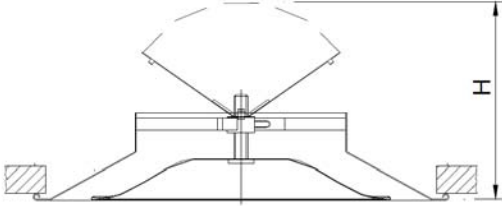


Select Model						
✓	Model	A	C	E	H	K
	DSO 06	11 13/16	5 3/4	12 51/64	4 15/16	1 47/64
	DSO 08	15 43/54	7 3/4	16 47/64	4 17/32	2 9/32
	DSO 10	19 11/64	9 3/4	20 5/64	5 3/64	2 53/64
	DSO 12	21 21/32	11 3/4	22 41/64	6 19/32	3 5/32


All dimensions in inches

Select Model	
✓	Model
	DSO-R3G 08
	DSO-R3G 10
	DSO-OBD 06
	DSO-OBD 12
	DSO-RSBD 06
	DSO-RSBD 12


Select Finish	
	Powder Coated White RAL9016
	Other RAL:



DSO-R3G
Integrated Butterfly Volume Damper
(N/A for 6" and 12")



OBD
Opposed Blade Damper



RSBD
Radial Sliding Blade Damper

(both only for 6" and 12")

Project:
Engineer:
Architect:
Contractor:

DSO Series Manually Adjustable Aluminum Round Diffuser

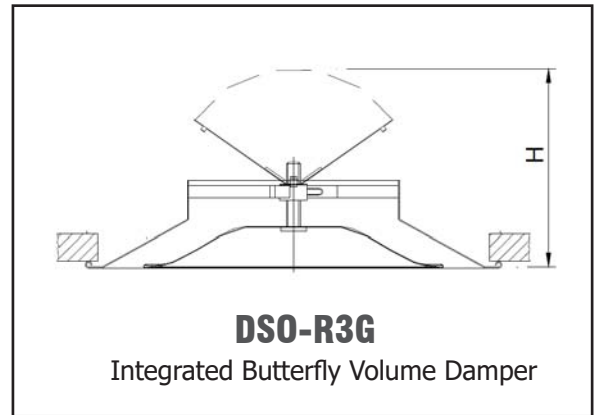
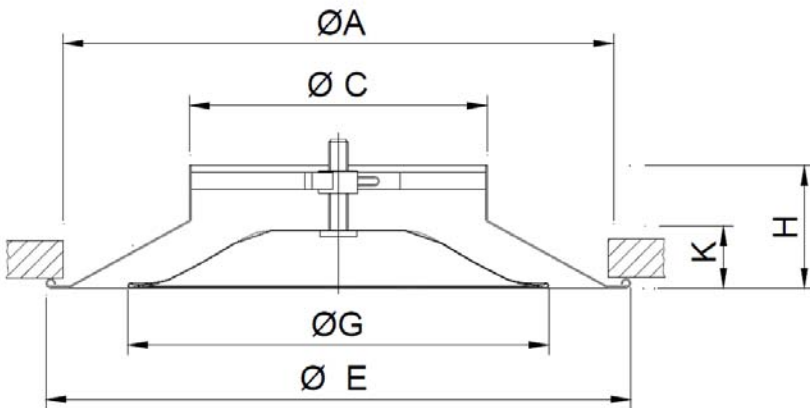
Material | Powder coated heavy gauge spun aluminum.

Air Pattern | 360° diffusion with vertical throw adjustment.

Ceiling Types | Open and Closed.



DSO
by MADEL®



Select Model									
✓	Model	Duct	A	C	E	H	K	Model	✓
	DSO 160	160	300	157	325	101	44	DSO-R3G 160	
	DSO 200	200	398	197	425	115	58	DSO-R3G 200	
	DSO 250	250	487	248	510	128	72	DSO-R3G 250	
	DSO 315	315	550	313	575	137	80	DSO-R3G 315	

All dimensions in millimeters (mm)

Select Finish	
	Powder Coated White RAL9016
	Other RAL:

Project:
Engineer:
Architect:
Contractor:

DSO-MOD Series Manually Adjustable Aluminum Round Diffusers

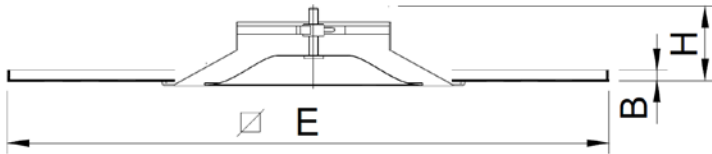
Material | Powder coated heavy gauge spun aluminum.

Air Pattern | 360° diffusion with vertical throw adjustment.

Ceiling Types | Open and Closed.



DSO-MOD
by MADEL®

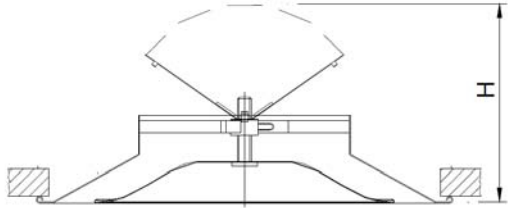


Select Model				
✓	Model	B	E	H
	DSO-MOD 06	15/32	23 3/4	4 15/16
	DSO-MOD 08	15/32	23 3/4	4 17/32
	DSO-MOD 10	15/32	23 3/4	5 3/64
	DSO-MOD 12	15/32	23 3/4	6 19/32


All dimensions in inches
For other dimensions see DSO

Select Model	
✓	Model
	DSO-MOD-R3G 08
	DSO-MOD-R3G 10
	DSO-MOD-OBD 06
	DSO-MOD-OBD 12
	DSO-MOD-RSBD 06
	DSO-MOD-RSBD 12


Select Finish	
	Powder Coated White RAL9016
	Other RAL:



DSO-R3G
Integrated Butterfly Volume Damper
(N/A for 6" and 12")



OBD
Opposed Blade Damper



RSBD
Radial Sliding Blade Damper

(both only for 6" and 12")

Project:

Engineer:

Architect:

Contractor:

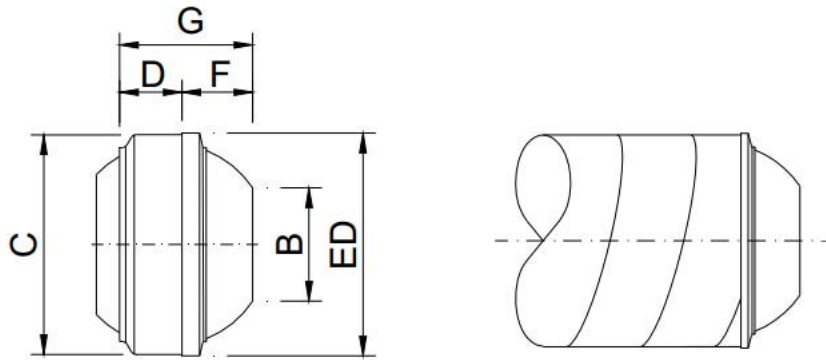
KAM-D Series Manually Adjustable Jet Nozzle, Duct Mounted

Material | Powder coated heavy gauge spun aluminum.

Air Pattern | Adjustable directional jet, long throw.



KAM-D
by MADEL®



Select Model

✓	Model	Duct Size	B	C	D	ED	F	G
	KAM-D 05	5"D	2 13/32"	4 27/32"	2 11/64"	4 61/64"	1 1/16"	3 11/32"
	KAM-D 06	6.5"D	3 5/32"	6 7/32"	2 11/64"	6 3/8"	1 11/32"	3 5/8"
	KAM-D 08	8"D	4 1/64"	7 51/64"	2 29/32"	7 63/64"	1 37/64"	4 51/64"
	KAM-D 10	10"D	5 1/8"	9 49/64"	3 57/64"	9 61/64"	1 57/64"	6 7/32"
	KAM-D 12	12.5"D	6 17/32"	12 21/64"	4 61/64"	12 19/32"	2 1/4"	7 23/32"
	KAM-D 16	16"D	8 11/32"	15 43/64"	6 3/8"	15 29/32"	2 61/64"	10 9/32"

All dimensions in inches (in)

Select Finish

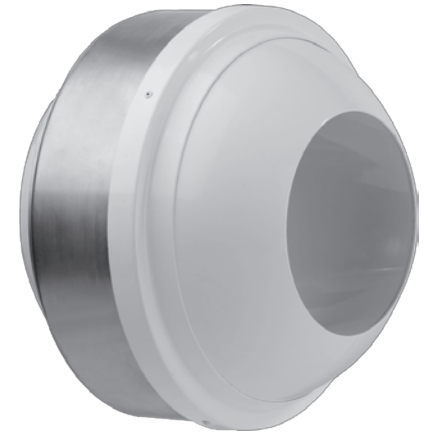
M9016	Powder Coated White RAL 9016
M9006	Powder Coated Metallic Grey RAL 9006
RAL xxxx	Other RAL:

Project:
Engineer:
Architect:
Contractor:

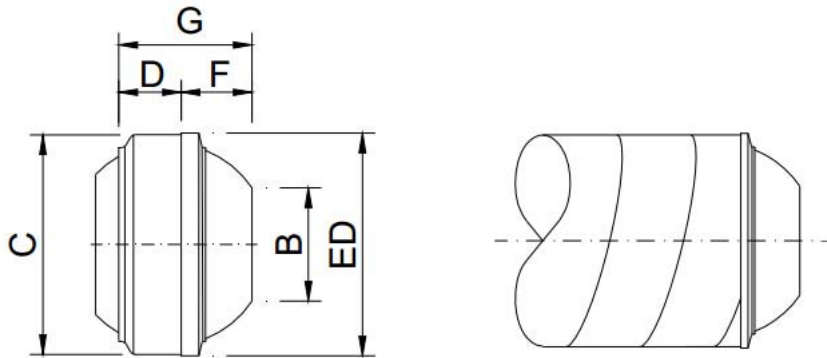
KAM-D Series Manually Adjustable Jet Nozzle, Duct Mounted

Material | Powder coated heavy gauge spun aluminum.

Air Pattern | Adjustable directional jet, long throw.



KAM-D
by MADEL®



Select Model								
✓	Model	Duct Size	B	C	D	ED	F	G
	KAM-D 125	125	61	123	55	126	27	85
	KAM-D 160	160	80	158	55	162	34	92
	KAM-D 200	200	102	198	74	203	40	122
	KAM-D 250	250	130	248	99	253	48	158
	KAM-D 315	315	166	313	126	320	57	196
	KAM-D 400	400	212	398	162	404	75	261

All dimensions in millimeters (mm)

Select Finish	
M9016	Powder Coated White RAL 9016
M9006	Powder Coated Metallic Grey RAL 9006
RAL xxxx	Please Specify:

Project:
Engineer:
Architect:
Contractor:

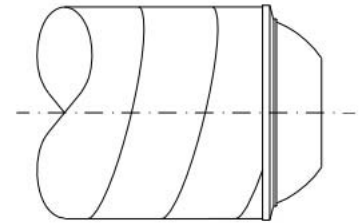
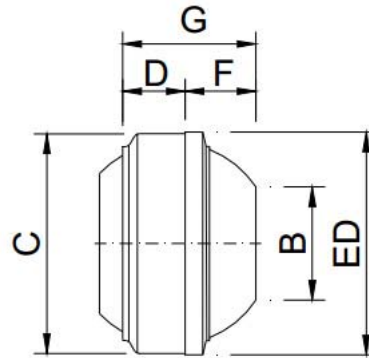
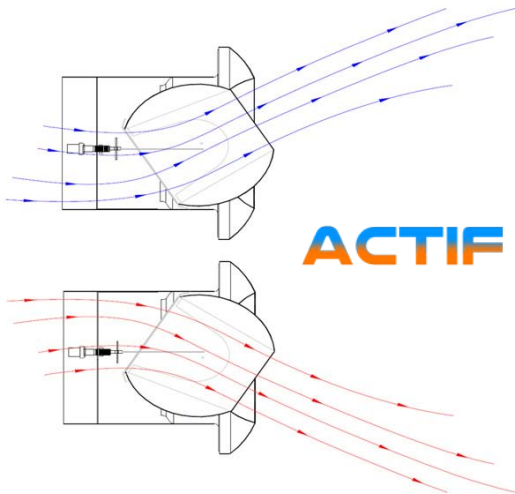
KAM-D-ACTIF Series Thermodynamic Nozzle Jet Diffuser - Duct Mounting

Material | Powder coated heavy gauge spun aluminum.

Air Pattern | Thermally adjustable directional jet, long throw. Horizontal jet is autonomously thermally adjusted up and down by means of a thermodynamic piston.



KAM-D-ACTIF
by MADEL®



Select Model

✓	Model	Duct Size	B	C	D	ED	F	G
	KAM-D-ACTIF 08	8"D	4 1/64"	7 51/64"	2 29/32"	7 63/64"	1 37/64"	4 51/64"
	KAM-D-ACTIF 10	10"D	5 1/8"	9 49/64"	3 57/64"	9 61/64"	1 57/64"	6 7/32"
	KAM-D-ACTIF 12	12.5"D	6 17/32"	12 21/64"	4 61/64"	12 19/32"	2 1/4"	7 23/32"

All dimensions in inches (in)

Select Finish

M9016	Powder Coated White RAL 9016
M9006	Powder Coated Metallic Grey RAL 9006
RAL xxxx	Please Specify:

Project:
Engineer:
Architect:
Contractor:



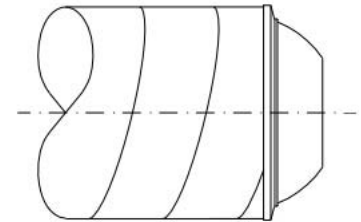
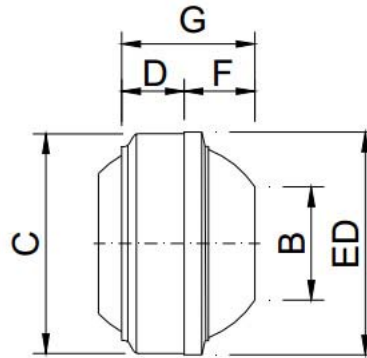
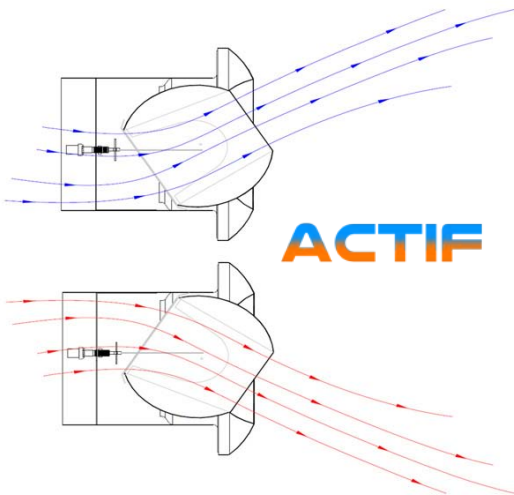
KAM-D-ACTIF Series Thermodynamic Nozzle Jet Diffuser - Duct Mounting

Material | Powder coated heavy gauge spun aluminum.

Air Pattern | Thermally adjustable directional jet, long throw. Horizontal jet is autonomously thermally adjusted up and down by means of a thermodynamic piston.



KAM-D-ACTIF
by MADEL®



Select Model								
✓	Model	Duct Size	B	C	D	ED	F	G
	KAM-D-ACTIF 200	200	102	198	74	203	40	122
	KAM-D-ACTIF 250	250	130	248	99	253	48	158
	KAM-D-ACTIF 315	315	166	313	126	320	57	196

All dimensions in millimeters (mm)

Select Finish	
M9016	Powder Coated White RAL 9016
M9006	Powder Coated Metallic Grey RAL 9006
RAL xxxx	Please Specify:

Project:	
Engineer:	
Architect:	
Contractor:	

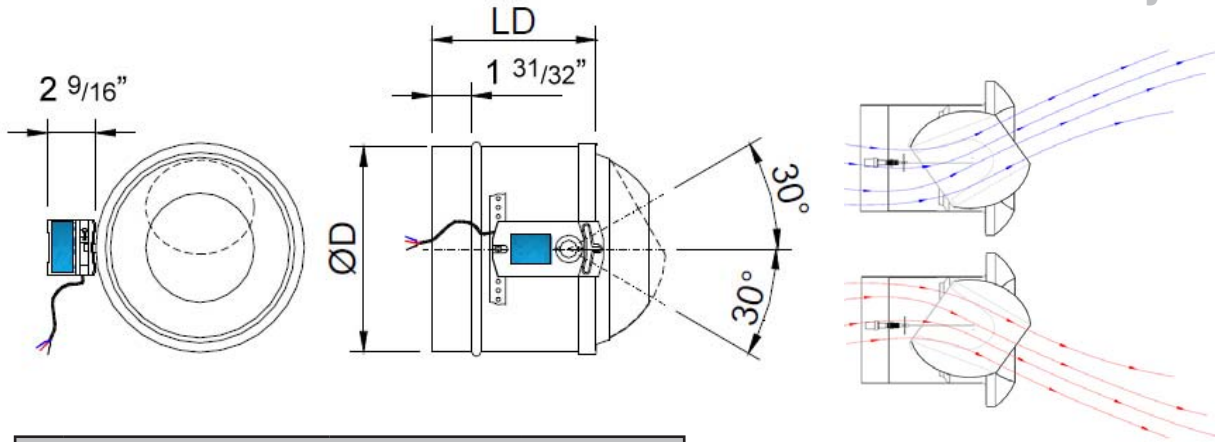
KAM-D-M5 Series Jet Nozzle For Duct Mounting Adjusted by On/Off Actuator

Material | Powder coated heavy gauge spun aluminum.

Air Pattern | Adjustable directional jet, long throw. Horizontal jet is adjusted up and down by means of an On/Off Actuator.



KAM-D
by MADEL®



Select Model			
✓	Model	Duct Size	LD
	KAM-D-M5 10	10"D	9 49/64"
	KAM-D-M5 12	12.5"D	12 21/64"
	KAM-D-M5 14	14"D	15 43/64"

All dimensions in inches (in)

Select Finish	
M9016	Powder Coated White RAL 9016
M9006	Powder Coated Metallic Grey RAL 9006
RAL xxxx	Please Specify:

Project:	
Engineer:	
Architect:	
Contractor:	

KAM-W Series Manually Adjustable Jet Nozzle, Surface Mounted

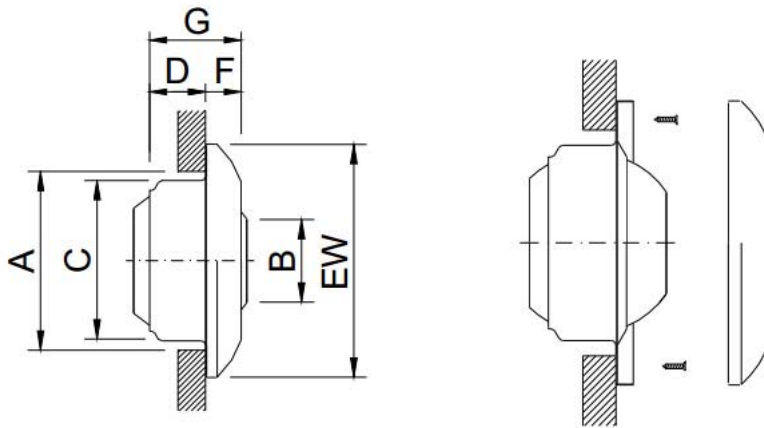
Material | Powder coated heavy gauge spun aluminum.

Air Pattern | Adjustable directional jet, long throw.



KAM-W
by MADEL®

PATENTED



Select Model								
✓	Model	Duct Size A	B	C	D	EW	F	G
	KAM-W 05	5"D	2 13/32"	4 27/32"	2 11/64"	7 1/8"	1 1/16"	3 11/32"
	KAM-W 06	6.5"D	3 5/32"	6 7/32"	2 11/64"	9 3/32"	1 11/32"	3 5/8"
	KAM-W 08	8"D	4 1/64"	7 51/64"	2 29/32"	11 3/8"	1 37/64"	4 51/64"
	KAM-W 10	10"D	5 1/8"	9 49/64"	3 57/64"	14 9/64"	1 57/64"	6 7/32"
	KAM-W 12	12.5"D	6 17/32"	12 21/64"	4 61/64"	17 53/64"	2 1/4"	7 23/32"
	KAM-W 16	16"D	8 11/32"	15 43/64"	6 3/8"	22 41/64"	2 61/64"	10 9/32"

All dimensions in inches (in)

Select Finish	
M9016	Powder Coated White RAL 9016
M9006	Powder Coated Metallic Grey RAL 9006
RAL xxxx	Please Specify:

Project:
Engineer:
Architect:
Contractor:

KAM-W Series Manually Adjustable Jet Nozzle, Surface Mounted

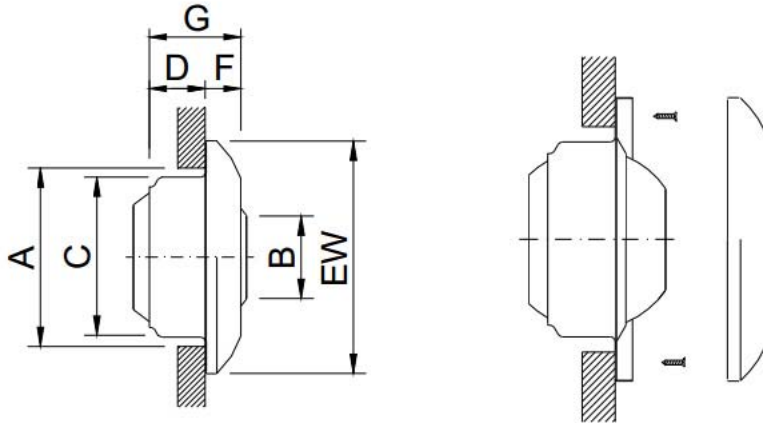
Material | Powder coated heavy gauge spun aluminum.

Air Pattern | Adjustable directional jet, long throw.



KAM-W
by MADEL®

PATENTED



Select Model								
✓	Model	Duct Size A	B	C	D	EW	F	G
	KAM-W 125	125	61	123	55	181	27	85
	KAM-W 160	160	80	158	55	231	34	92
	KAM-W 200	200	102	198	74	289	40	122
	KAM-W 250	250	130	248	99	359	48	158
	KAM-W 315	315	166	313	126	453	57	196
	KAM-W 400	400	212	398	162	575	75	261

All dimensions in millimeters (mm)

Select Finish	
M9016	Powder Coated White RAL 9016
M9006	Powder Coated Metallic Grey RAL 9006
RAL xxxx	Please Specify:

Project:

Engineer:

Architect:

Contractor:

KAM-W-ACTIF Series Thermodynamic Nozzle Jet Diffuser - Surface Mounting

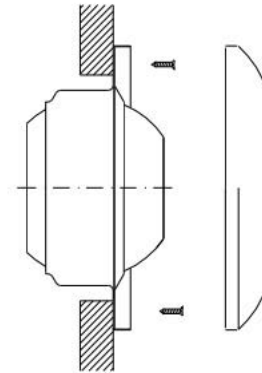
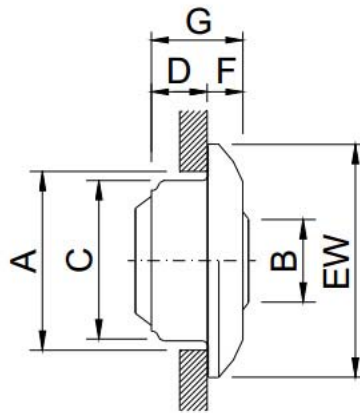
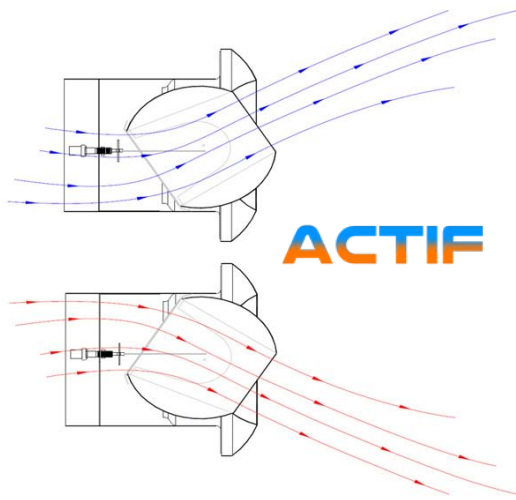


Material | Powder coated heavy gauge spun aluminum.

Air Pattern | Thermally adjustable directional jet, long throw. Horizontal jet is autonomously thermally adjusted up and down by means of a thermodynamic piston.

PATENTED

KAM-W-ACTIF
by MADEL®



Select Model

✓	Model	Duct Size A	B	C	D	EW	F	G
	KAM-W-ACTIF 08	8"D	4 1/64"	7 51/64"	2 29/32"	11 3/8"	1 37/64"	4 51/64"
	KAM-W-ACTIF 10	10"D	5 1/8"	9 49/64"	3 57/64"	14 9/64"	1 57/64"	6 7/32"
	KAM-W-ACTIF 12	12.5"D	6 17/32"	12 21/64"	4 61/64"	17 53/64"	2 1/4"	7 23/32"

All dimensions in inches (in)

Select Finish

M9016	Powder Coated White RAL 9016
M9006	Powder Coated Metallic Grey RAL 9006
RAL xxxx	Please Specify:

Project:
Engineer:
Architect:
Contractor:

KAM-W-ACTIF Series Thermodynamic Nozzle Jet Diffuser - Surface Mounting

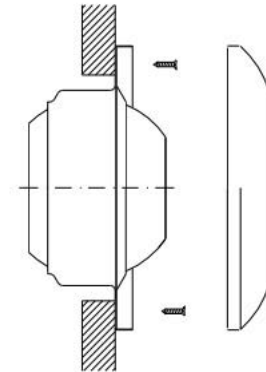
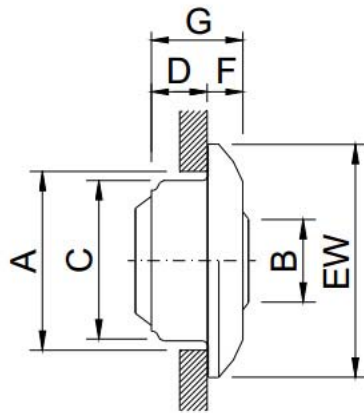
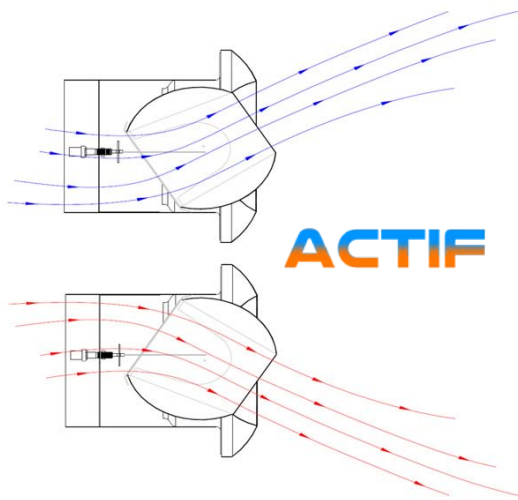


Material | Powder coated heavy gauge spun aluminum.

Air Pattern | Thermally adjustable directional jet, long throw. Horizontal jet is autonomously thermally adjusted up and down by means of a thermodynamic piston.

PATENTED

KAM-W-ACTIF
by MADEL®



Select Model								
✓	Model	Duct Size A	B	C	D	EW	F	G
	KAM-W-ACTIF 200	200	102	198	74	289	40	122
	KAM-W-ACTIF 250	250	130	248	99	359	48	158
	KAM-W-ACTIF 315	315	166	313	126	453	57	196

All dimensions in millimeters (mm)

Select Finish	
M9016	Powder Coated White RAL 9016
M9006	Powder Coated Metallic Grey RAL 9006
RAL xxxx	Please Specify:

Project:

Engineer:

Architect:

Contractor:

KAM-W-M5 Series Jet Nozzle Diffuser - Surface Mount Adjusted by On/Off Actuator

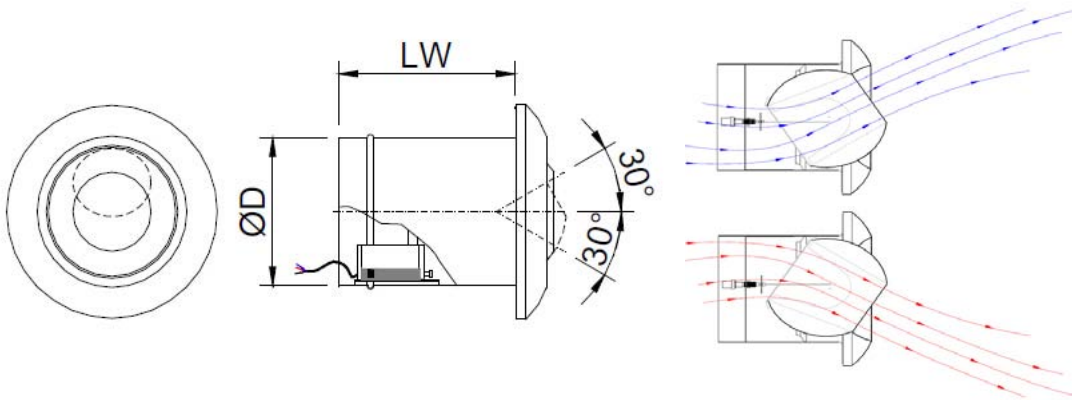
Material | Powder coated heavy gauge spun aluminum.

Air Pattern | Adjustable directional jet, long throw. Horizontal jet is adjusted up and down by means of an On/Off Actuator.



KAM-W-M5
by MADEL®

PATENTED



Select Model			
✓	Model	Duct Size	LW
	KAM-W-M5 10	10"D	5 1/8"
	KAM-W-M5 12	12.5"D	6 17/32"
	KAM-W-M5 14	14"D	8 11/32"

All dimensions in inches (in)

Select Finish	
M9016	Powder Coated White RAL 9016
M9006	Powder Coated Metallic Grey RAL 9006
RAL xxxx	Please Specify:

Project:

Engineer:

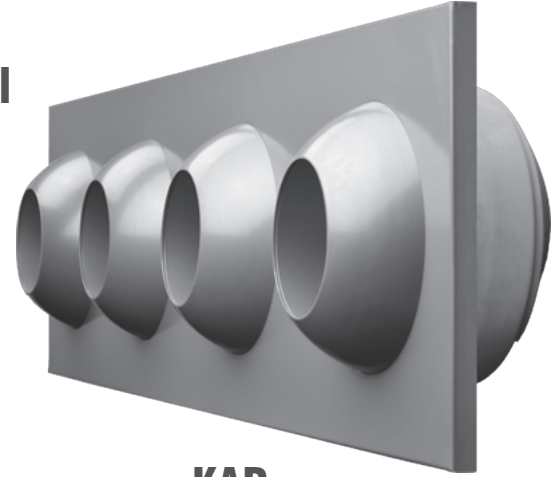
Architect:

Contractor:

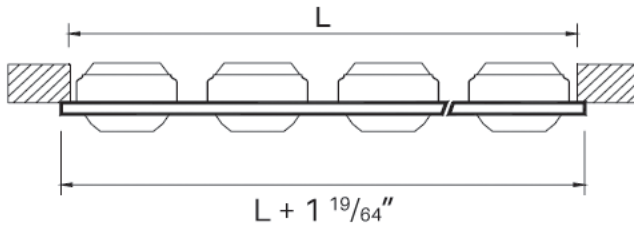
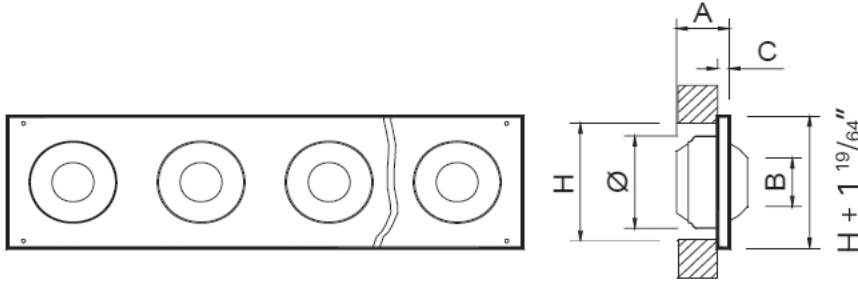
KAP Series Adjustable Long Throw Jet Nozzle Diffuser Panel

Materials | Powder coated heavy gauge spun aluminum nozzles and galvanized steel panel.

Air Pattern | Adjustable multi-directional jets, long throw.



KAP
by MADEL®



Select Dimension						
✓	List Size L x H	Nozzles Qty	Ø	A	B	C
	20" x 8"	2	6 1/4"	3 35/64"	3 5/32"	25/64"
	32" x 8"	3	6 1/4"	3 35/64"	3 5/32"	25/64"
	40" x 8"	5	6 1/4"	3 35/64"	3 5/32"	25/64"
	60" x 8"	7	6 1/4"	3 35/64"	3 5/32"	25/64"
	80" x 8"	9	6 1/4"	3 35/64"	3 5/32"	25/64"
	20" x 10"	2	8"	4 17/32"	4 1/64"	25/64"
	32" x 10"	3	8"	4 17/32"	4 1/64"	25/64"
	40" x 10"	4	8"	4 17/32"	4 1/64"	25/64"
	60" x 10"	6	8"	4 17/32"	4 1/64"	25/64"
	80" x 10"	7	8"	4 17/32"	4 1/64"	25/64"
	32" x 12"	2	10"	4 59/64"	5 1/8"	19/32"
	40" x 12"	3	10"	4 59/64"	5 1/8"	19/32"
	60" x 12"	4	10"	4 59/64"	5 1/8"	19/32"
	80" x 12"	6	10"	4 59/64"	5 1/8"	19/32"
	32" x 16"	2	12.5"	7 3/32"	6 17/32"	19/32"
	40" x 16"	2	12.5"	7 3/32"	6 17/32"	19/32"
	60" x 16"	3	12.5"	7 3/32"	6 17/32"	19/32"
	80" x 16"	4	12.5"	7 3/32"	6 17/32"	19/32"

All dimensions in inches (in)

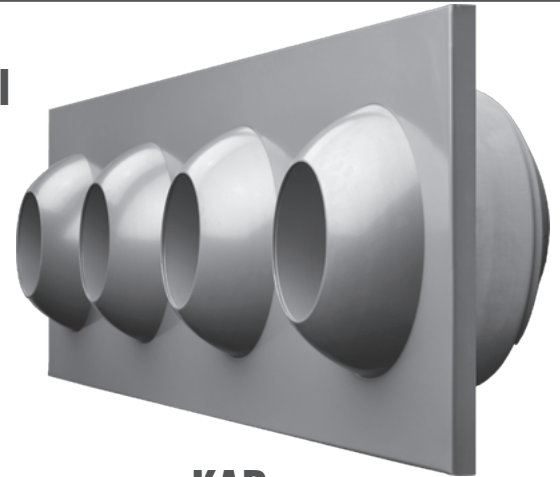
Select Finish	
M9016	Powder Coated White RAL 9016
RAL xxxx	Please Specify:

Project:
Engineer:
Architect:
Contractor:

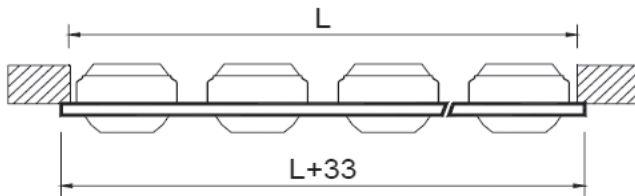
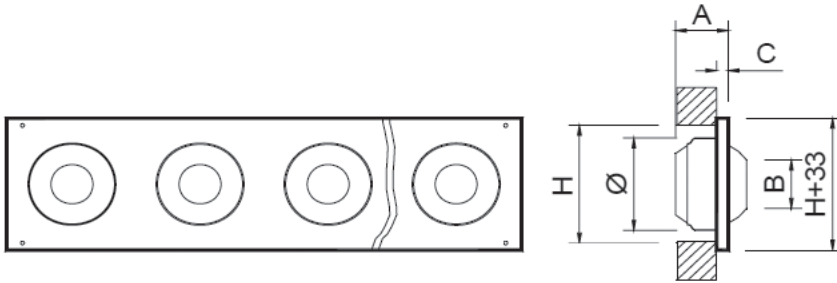
KAP Series Adjustable Long Throw Jet Nozzle Diffuser Panel

Materials | Powder coated heavy gauge spun aluminum nozzles and galvanized steel panel.

Air Pattern | Adjustable multi-directional jets, long throw.



KAP
by MADEL®



Select Dimension						
✓	List Size L x H	Nozzles Qty	Ø	A	B	C
	500 x 200	2	160	90	80	10
	800 x 200	3	160	90	80	10
	1000 x 200	5	160	90	80	10
	1500 x 200	7	160	90	80	10
	2000 x 200	9	160	90	80	10
	500 x 250	2	200	115	102	10
	800 x 250	3	200	115	102	10
	1000 x 250	4	200	115	102	10
	1500 x 250	6	200	115	102	10
	2000 x 250	7	200	115	102	10
	800 x 300	2	250	125	130	15
	1000 x 300	3	250	125	130	15
	1500 x 300	4	250	125	130	15
	2000 x 300	6	250	125	130	15
	800 x 400	2	315	180	166	15
	1000 x 400	2	315	180	166	15
	1500 x 400	3	315	180	166	15
	2000 x 400	4	315	180	166	15

All dimensions in mm

Select Finish	
M9016	Powder Coated White RAL 9016
RAL xxxx	Please Specify:

Project:
Engineer:
Architect:
Contractor:

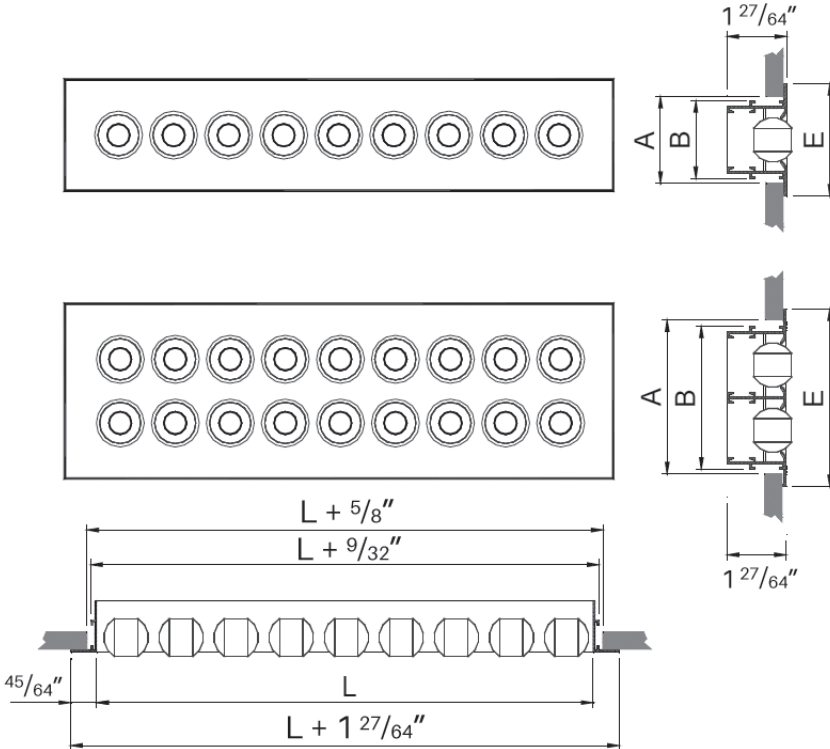
KIS Series Adjustable Linear Micro-Nozzle Jet Diffusers

Material | Aluminum face and plastic nozzles

Air Pattern | Long throw, adjustable directional jet



KIS
by MADEL®



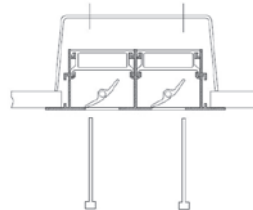
Select Model				
✓	Model	E	A	B
	KIS 1	2 43/64"	2 11/64"	1 27/32"
	KIS 2	4 7/32"	3 47/64"	3 25/64"

All dimensions in in

Mounting	
PL	Concealed Spring Clips (requires PLSD)
PM	Concealed U Clip

PM Mounting Kit

PM Mounting Kit consists of C shaped clips with long screws. Recommended for installation without plenum.

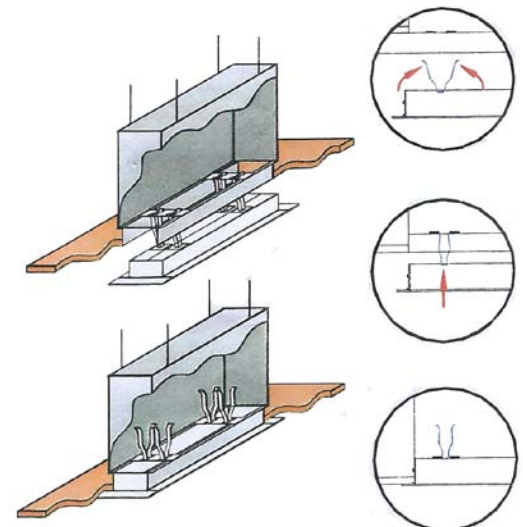


PL Hidden Mounting System

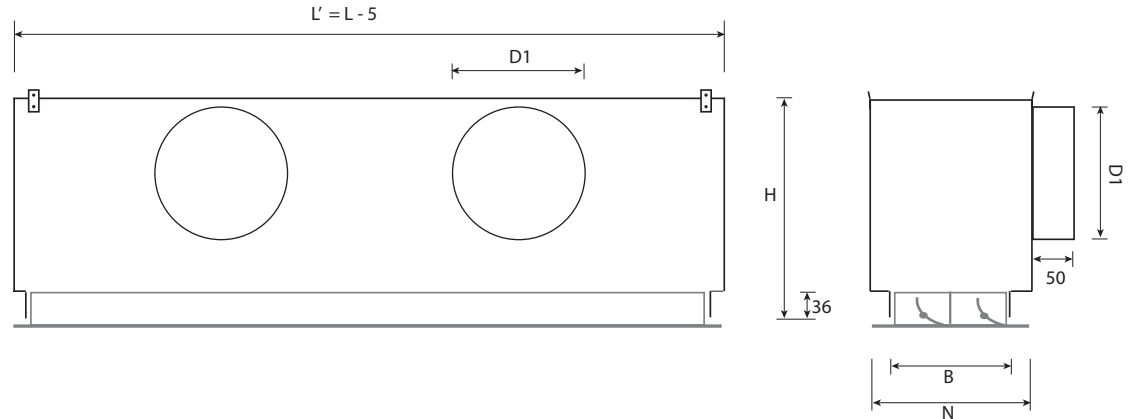
PL Hidden Mounting System consists of spring clips attached to the diffuser and special brackets attached to the plenum.

The clips have a two steps profile. The hooks must first be inserted into the brackets. The hooks secure the product in place, even when submitted to intense vibrations, making it safe for ceiling installation.

The second step only requires to push the diffuser until it lays flush with the gypsum or plenum opening. The spring pressure maintains the product in place.



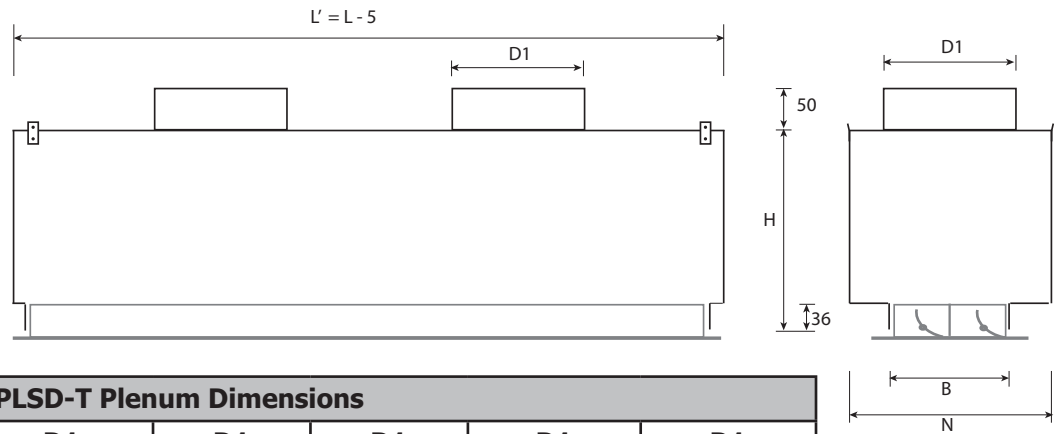
PLSD Plenum (Side Connection)



PLSD Plenum Dimensions

Nb Rows	H	B	N	D1 L ≤ 19 11/16"	D1 L ≤ 39 3/8"	D1 L ≤ 47 1/4"	D1 L ≤ 59 1/16"	D1 L = 78 47/64"
1	10 5/64"	1 27/32"	2 23/32"	1x 6"D	1x 6"D	1x 6"D	1x 6"D	2x 6"D
2	10 5/64"	3 25/64"	4 1/4"	1x 6"D	1x 6"D	1x 6"D	2x 6"D	2x 6"D

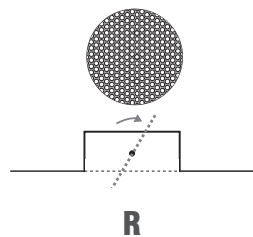
PLSD-T Plenum (Top Connection)



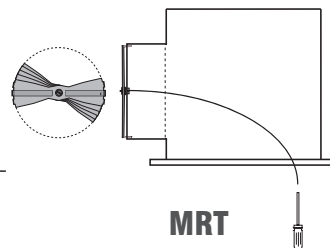
PLSD-T Plenum Dimensions

Nb Rows	H	B	N	D1 L ≤ 19 11/16"	D1 L ≤ 39 3/8"	D1 L ≤ 47 1/4"	D1 L ≤ 59 1/16"	D1 L = 78 47/64"
1	8"	1 27/32"	6 7/8"	1x 6"D	1x 6"D	1x 6"D	1x 6"D	2x 6"D
2	8"	3 25/64"	6 7/8"	1x 6"D	1x 6"D	1x 6"D	2x 6"D	2x 6"D

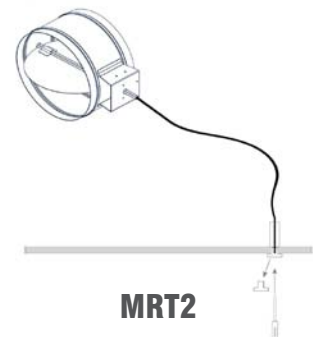
Integrated Air Volume Dampers



Perforated damper +
air equalizer



Manually operated damper,
cable inside the plenum,
adjustment through face



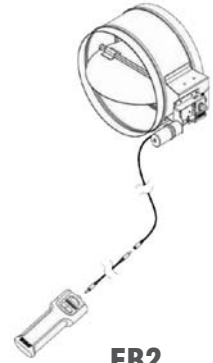
Manually operated damper,
cable through drywall with
termination fixture

Integrated Air Volume Dampers



EB

Battery operated electro-balance damper with remote control, cable through face



EB2

Battery operated electro-balance damper with remote control, cable through drywall with termination fixture

End Borders	
AR	Two End Borders
ARI	Left End Border Only
ARD	Right End Border Only
INT	No End Border (Central Sections)

Finish	
/M9016	Powder Coated White RAL 9016 (standard)
/AA	Anodized in matt silver with black vanes
/RAL xxxx	Other (specify) :

Plenum	
PLSD	Side connection & hidden spring clips attachment system
PLSD-T	Top connection & hidden spring clips attachment system

Neck-Installed Air Volume Damper		Cable Length
R	Perforated air volume damper/equalizer	
MRT	Manually operated, cable through face	
MRT2	Manually operated, drywall termination fixture	
EB	Electro-balanced, battery powered, cable through face	
EB2	Electro-balanced, battery powered, termination fixture	

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Project:
Engineer:
Architect:
Contractor:

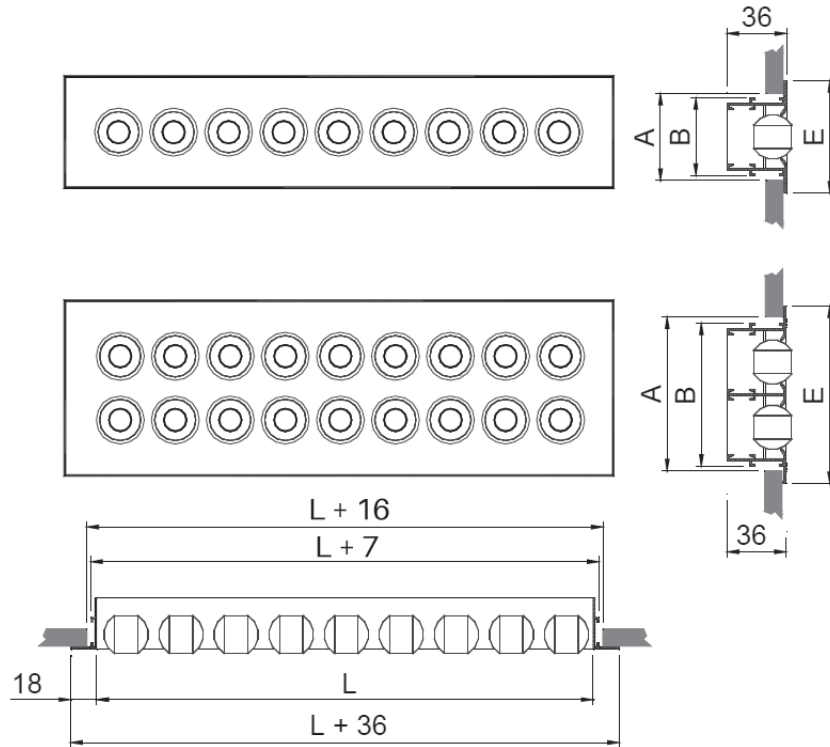
KIS Series Adjustable Linear Micro-Nozzle Jet Diffusers

Material | Aluminum face and plastic nozzles

Air Pattern | Long throw, adjustable directional jet



KIS
by MADEL®



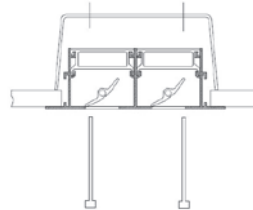
Select Model				
✓	Model	E	A	B
	KIS 1	68	55	47
	KIS 2	107	95	86

All dimensions in mm

Mounting	
PL	Concealed Spring Clips (requires PLSD)
PM	Concealed U Clip

PM Mounting Kit

PM Mounting Kit consists of C shaped clips with long screws. Recommended for installation without plenum.

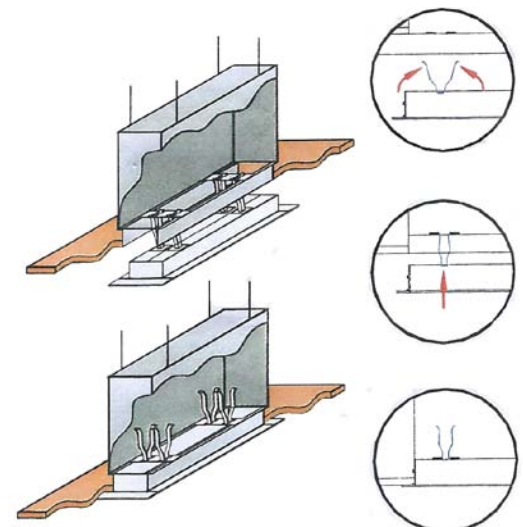


PL Hidden Mounting System

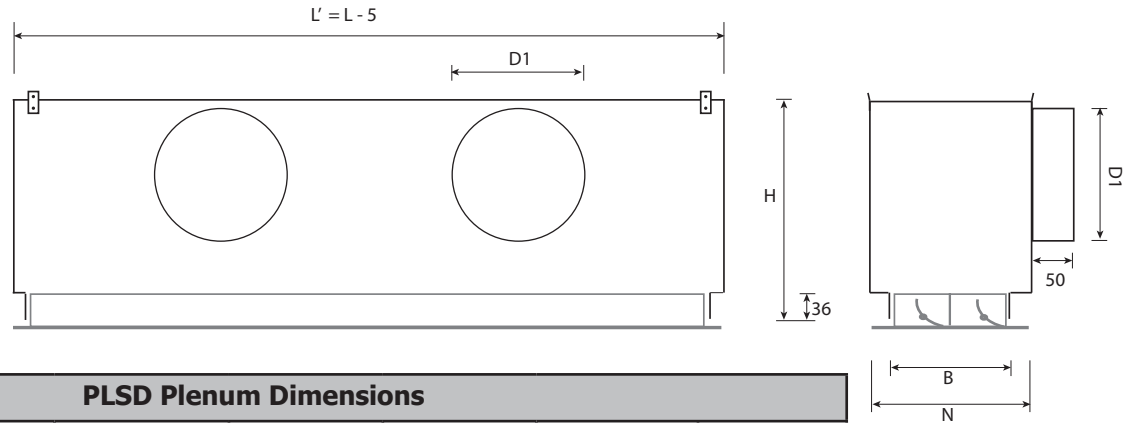
PL Hidden Mounting System consists of spring clips attached to the diffuser and special brackets attached to the plenum.

The clips have a two steps profile. The hooks must first be inserted into the brackets. The hooks secure the product in place, even when submitted to intense vibrations, making it safe for ceiling installation.

The second step only requires to push the diffuser until it lays flush with the gypsum or plenum opening. The spring pressure maintains the product in place.

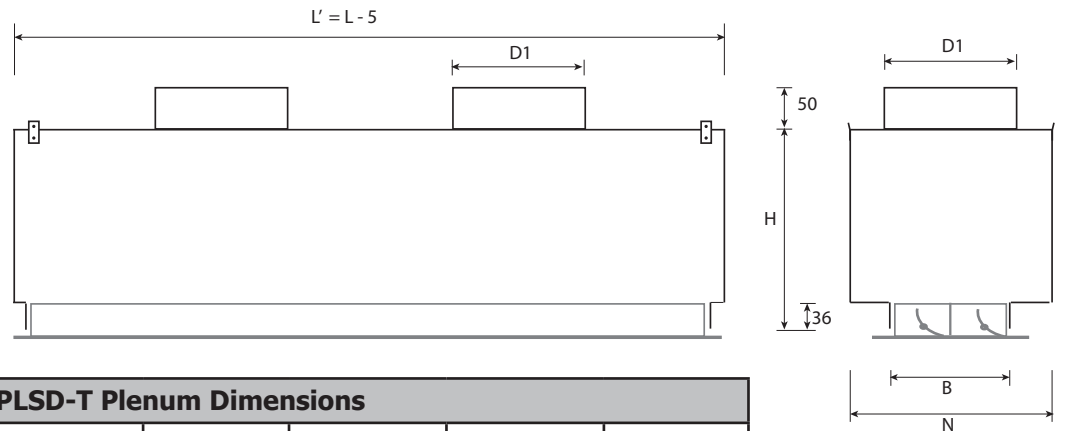


PLSD Plenum (Side Connection)



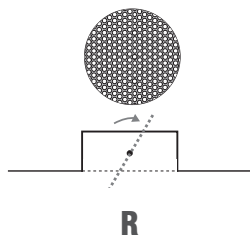
PLSD Plenum Dimensions									
Nb Rows	H	B	N	D1 (L ≤ 500)	D1 (L ≤ 1000)	D1 (L ≤ 1200)	D1 (L ≤ 1500)	D1 (L ≤ 2000)	
1	256	46.7	69	1x 148	1x 148	1x 148	1x 148	2x 148	
2	256	86.1	108	1x 148	1x 148	1x 148	2x 148	2x 148	

PLSD-T Plenum (Top Connection)

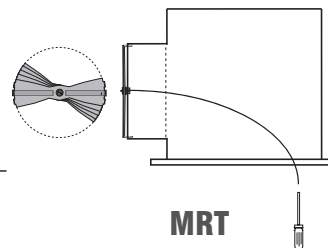


PLSD-T Plenum Dimensions									
Nb Rows	H	B	N	D1 (L ≤ 500)	D1 (L ≤ 1000)	D1 (L ≤ 1200)	D1 (L ≤ 1500)	D1 (L ≤ 2000)	
1	203	46.7	175	1x 148	1x 148	1x 148	1x 148	2x 148	
2	203	86.1	175	1x 148	1x 148	1x 148	2x 148	2x 148	

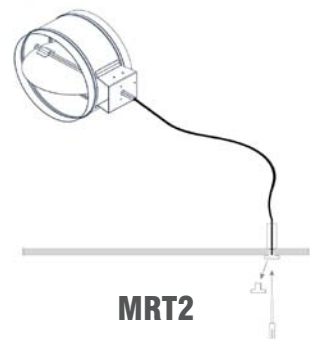
Integrated Air Volume Dampers



R
Perforated damper +
air equalizer



MRT
Manually operated damper,
cable inside the plenum,
adjustment through face



MRT2
Manually operated damper,
cable through drywall with
termination fixture

Integrated Air Volume Dampers



EB
Battery operated electro-balance damper with remote control, cable through face



EB2
Battery operated electro-balance damper with remote control, cable through drywall with termination fixture

End Borders	
AR	Two End Borders
ARI	Left End Border Only
ARD	Right End Border Only
INT	No End Border (Central Sections)

Finish	
/M9016	Powder Coated White RAL 9016 (standard)
/AA	Anodized in matt silver with black vanes
/RAL xxxx	Other (specify) :

Plenum	
PLSD	Side connection & hidden spring clips attachment system
PLSD-T	Top connection & hidden spring clips attachment system

Neck-Installed Air Volume Damper		Cable Length
R	Perforated air volume damper/equalizer	
MRT	Manually operated, cable through face	
MRT2	Manually operated, drywall termination fixture	
EB	Electro-balanced, battery powered, cable through face	
EB2	Electro-balanced, battery powered, termination fixture	

Insulation	
AL	1/2" (13mm) Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" (50mm) Exterior R6 Thermal Insulation

Project:
Engineer:
Architect:
Contractor:



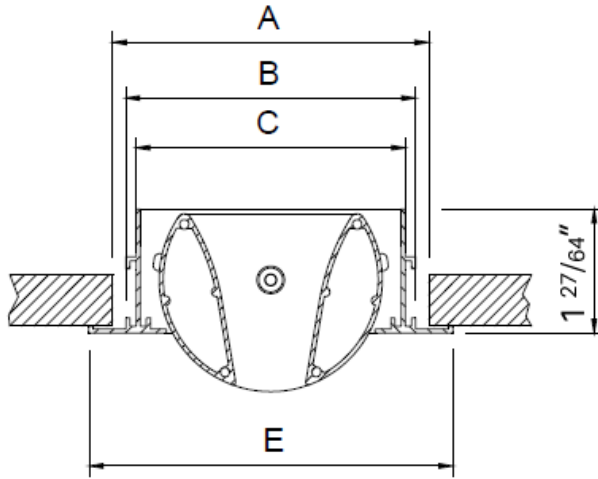
KOBE Series Adjustable Long Throw Linear Jet Diffusers

Material | Aluminum

Air Pattern | Long throw, adjustable directional jet

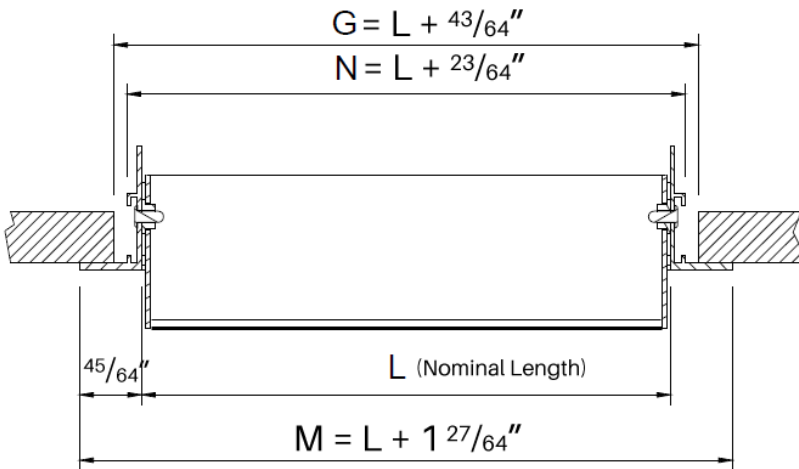


KOBE
by MADEL®

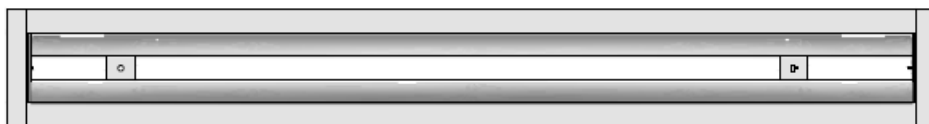


Dimension						
✓	Nominal Width	Nozzle Width	A	B	C	E
	15	0.6"	3 11/16"	3 21/64"	3 3/32"	4 11/64"
	20	0.8"	3 11/16"	3 21/64"	3 3/32"	4 11/64"
	25	1"	3 11/16"	3 21/64"	3 3/32"	4 11/64"
	30	1.2"	3 11/16"	3 21/64"	3 3/32"	4 11/64"
	40	1.6"	4 15/64"	3 7/8"	3 41/64"	4 23/32"
	50	2"	4 43/64"	4 5/16"	4 5/64"	5 5/32"

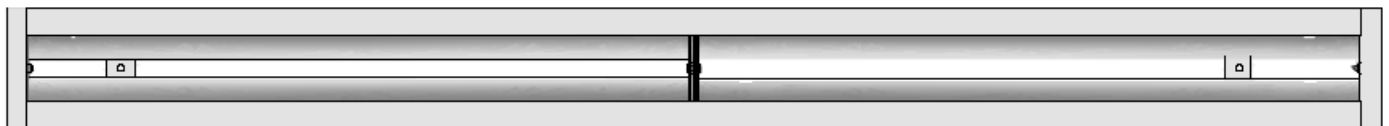
All dimensions in inches



Single Nozle
12" <= L <= 40"

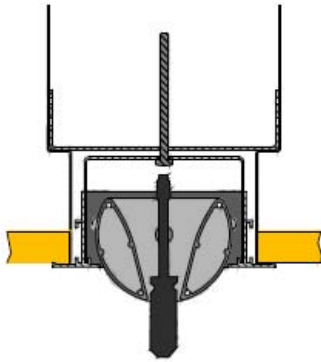


Split Nozle
44" <= L <= 79"



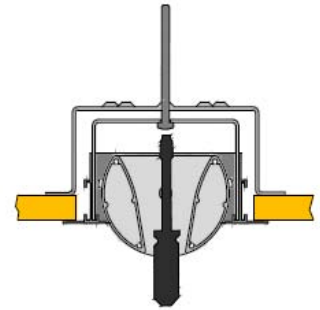
PL Mounting

PLKB-PL Plenum
Mounting Clips



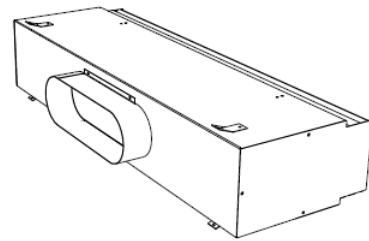
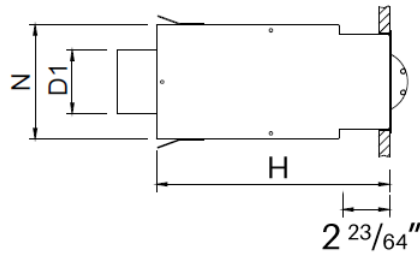
PM Mounting

Mounting Clips for PLKB-PM
Plenum or no plenum

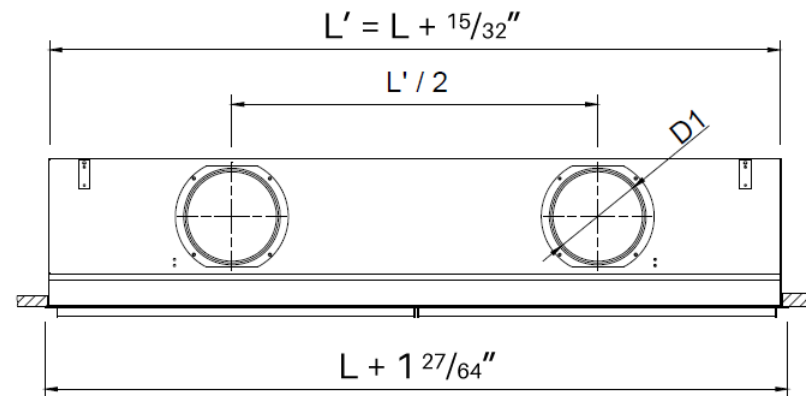


PLKB-PL Plenum

PLKB-T-PL



PLKB-S-PL

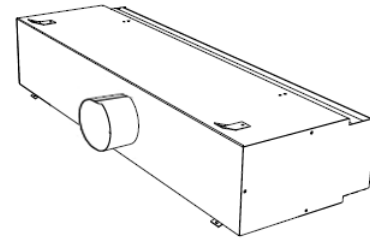
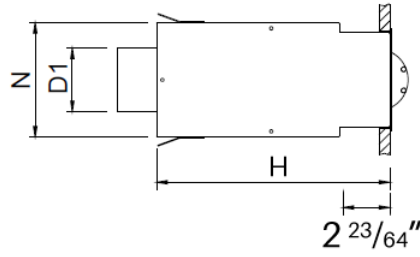


PLKB-PL	N	11 13/16 <= L <= 23 5/8		23 5/8 < L <= 39 3/8		39 3/8 < L <= 59 1/16		59 1/16 < L <= 78 47/64	
		D1	H	D1	H	D1	H	D1	H
KOBE 15	4 3/8	5 7/8	9 39/64	5 7/8	9 39/64	(2x) 5 7/8	9 39/64	(2x) 5 7/8	9 39/64
KOBE 20	4 3/8	5 7/8	9 39/64	5 7/8	9 39/64	(2x) 5 7/8	9 39/64	(2x) 7 7/8	11 3/16
KOBE 25	4 3/8	5 7/8	9 39/64	7 7/8	11 3/16	(2x) 7 7/8	11 3/16	(2x) 7 7/8	11 3/16
KOBE 30	4 3/8	7 7/8	11 3/16	7 7/8	11 3/16	(2x) 7 7/8	11 3/16	(2x) 7 7/8	11 3/16
KOBE 40	4 59/64	7 7/8	11 3/16	7 7/8	11 3/16	(2x) 7 7/8	11 3/16	(2x) 9 7/8	13 5/32
KOBE 50	5 5/16	7 7/8	11 3/16	7 7/8	11 3/16	(2x) 9 7/8	13 5/32	(2x) 9 7/8	13 5/32

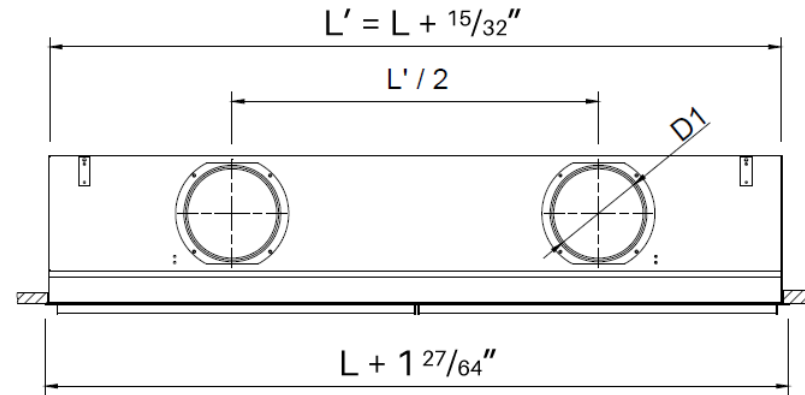
All dimensions in inches

PLKB-PM Plenum

PLKB-T-PM



PLKB-S-PM



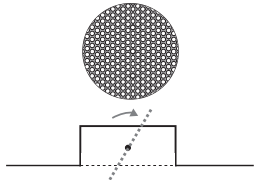
PLKB-S-PM	N	L ≤ 24		24 < L ≤ 36		36 < L ≤ 48		48 < L ≤ 60		60 < L ≤ 78 47/64	
		D1	H	D1	H	D1	H	D1	H	D1	H
KOBE 15	5	5 7/8	9 39/64	5 7/8	9 39/64	5 7/8	9 39/64	(2x) 5 7/8	9 39/64	(2x) 5 7/8	9 39/64
KOBE 20	5	5 7/8	9 39/64	5 7/8	9 39/64	7 7/8	11 3/16	(2x) 5 7/8	11 3/16	(2x) 7 7/8	11 3/16
KOBE 25	5	5 7/8	9 39/64	7 7/8	11 3/16	7 7/8	11 3/16	(2x) 7 7/8	11 3/16	(2x) 7 7/8	11 3/16
KOBE 30	5	7 7/8	11 3/16	7 7/8	11 3/16	7 7/8	11 3/16	(2x) 7 7/8	11 3/16	(2x) 7 7/8	11 3/16
KOBE 40	5 3/4	7 7/8	11 3/16	7 7/8	11 3/16	9 7/8	13 5/32	(2x) 7 7/8	13 5/32	(2x) 9 7/8	13 5/32
KOBE 50	6	7 7/8	11 3/16	7 7/8	11 3/16	9 7/8	13 5/32	(2x) 9 7/8	13 5/32	(2x) 9 7/8	13 5/32

All dimensions in inches

PLKB-T-PM	H	L ≤ 24		24 < L ≤ 36		36 < L ≤ 48		48 < L ≤ 60		60 < L ≤ 78 47/64	
		D1	N	D1	N	D1	N	D1	N	D1	N
KOBE 15	6 7/8	5 7/8	6 7/8	5 7/8	6 7/8	5 7/8	6 7/8	(2x) 5 7/8	6 7/8	(2x) 5 7/8	6 7/8
KOBE 20	6 7/8	5 7/8	6 7/8	5 7/8	6 7/8	7 7/8	8 7/8	(2x) 5 7/8	6 7/8	(2x) 7 7/8	8 7/8
KOBE 25	6 7/8	5 7/8	6 7/8	7 7/8	8 7/8	7 7/8	8 7/8	(2x) 7 7/8	8 7/8	(2x) 7 7/8	8 7/8
KOBE 30	6 7/8	7 7/8	8 7/8	7 7/8	8 7/8	7 7/8	8 7/8	(2x) 7 7/8	8 7/8	(2x) 7 7/8	8 7/8
KOBE 40	7 7/8	7 7/8	8 7/8	7 7/8	8 7/8	9 7/8	10 7/8	(2x) 7 7/8	10 7/8	(2x) 9 7/8	10 7/8
KOBE 50	7 7/8	7 7/8	8 7/8	7 7/8	8 7/8	9 7/8	10 7/8	(2x) 9 7/8	10 7/8	(2x) 9 7/8	10 7/8

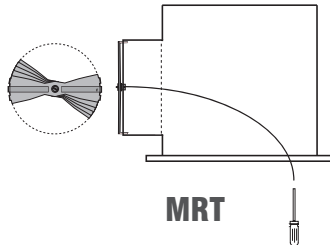
All dimensions in inches

Integrated Air Volume Dampers



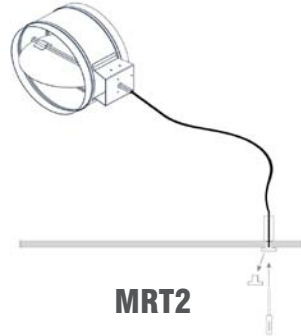
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Important Note: MRT, MRT2, EB and EB2 Damper Options are only available for KOO with 2 rows (Height 8" and 12").

Accessories

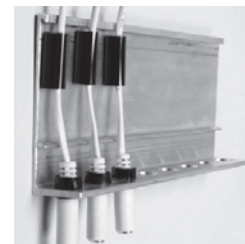
EB-SP1

Single Connector
Drywall Termination
Fixture for EB
dampers



EB-AB8

Eight Connector
Wall Bracket for EB
dampers



EB-SP8

Eight Connector
Drywall Termination
Fixture for EB
dampers



EB-REMOTE

Remote Control for
EB dampers





Diffuser Length (inches)	

Mounting	
PL	Mounting clips for PLKB plenum
PM	Mounting crossbar for installation without plenum

Finish	
M9016	Powder Coated White RAL 9016
R9010	Powder Coated White RAL 9010
R9005M	Powder Coated Matte Jet Black RAL 9005
RAL xxxx	Please Specify:

Plenum	
PLKB-S-PL	Side connection, PL mounting
PLKB-T-PL	Top (Back) connection, PL mounting
PLKB-S-PM	Side connection, PM mounting
PLKB-T-PM	Top (Back) connection, PM mounting

Insulation	
AL	1/2" Interior Accoustical Liner
ALC	1/2" Interior Closed Cell Accoustical Insulation
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, cable thru drywall

Cable Length (MRT2 or EB2)	

Project:
Engineer:
Architect:
Contractor:



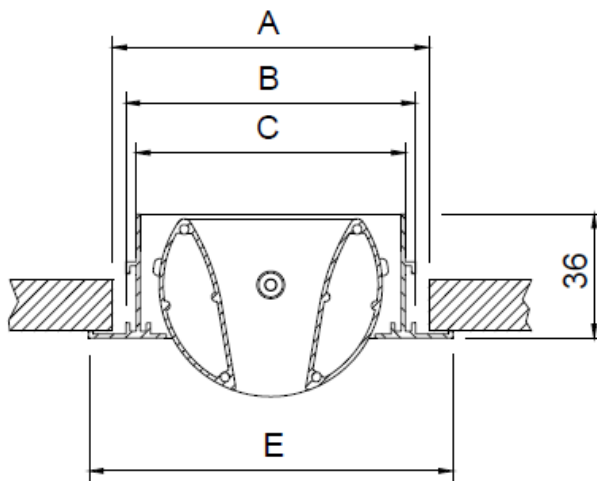
KOBE Series Adjustable Long Throw Linear Jet Diffusers

Material | Aluminum

Air Pattern | Long throw, adjustable directional jet

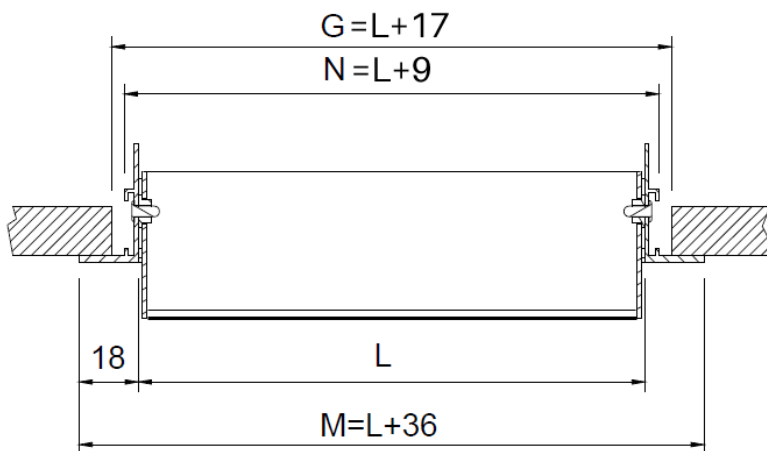


KOBE
by MADEL®

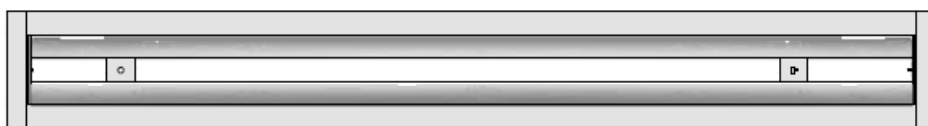


Dimension					
✓	Nozzle Width	A	B	C	E
	15	93.5	84.5	78.5	106
	20	93.5	84.5	78.5	106
	25	93.5	84.5	78.5	106
	30	93.5	84.5	78.5	106
	40	107.5	98.5	92.5	120
	50	118.5	109.5	103.5	131

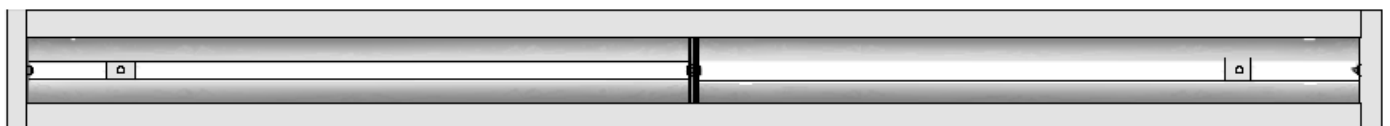
All dimensions in mm



Single Nozle
300 ≤ L ≤ 1000

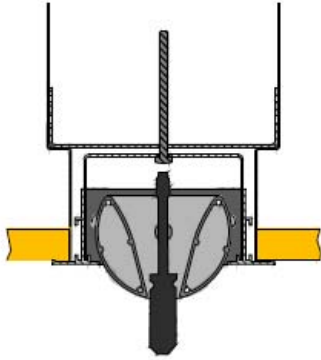


Split Nozle
1100 ≤ L ≤ 2000



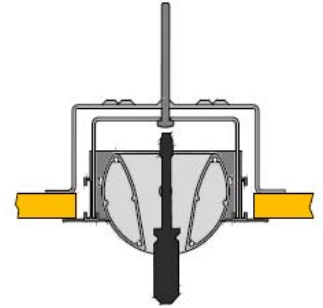
PL Mounting

PLKB-PL Plenum
Mounting Clips



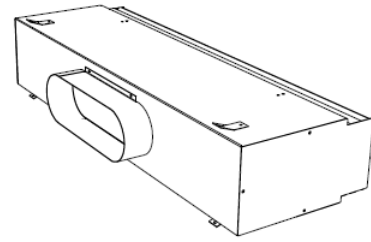
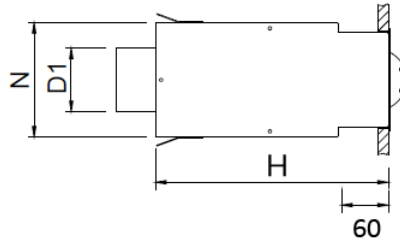
PM Mounting

Mounting Clips for PLKB-PM
Plenum or no plenum

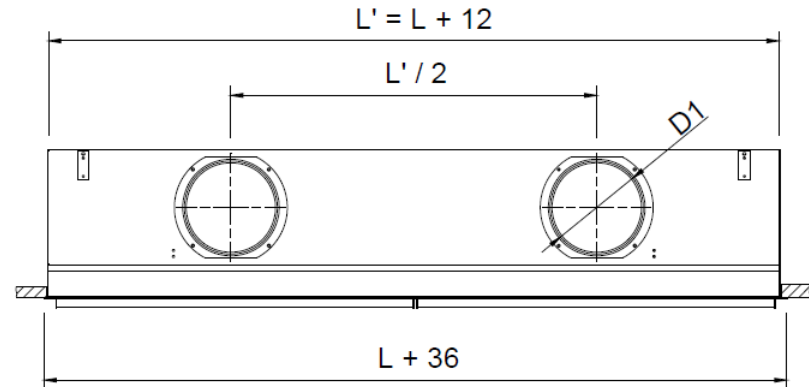


PLKB-PL Plenum

PLKB-T-PL



PLKB-S-PL

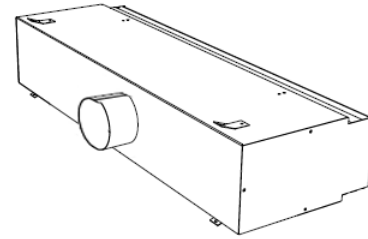
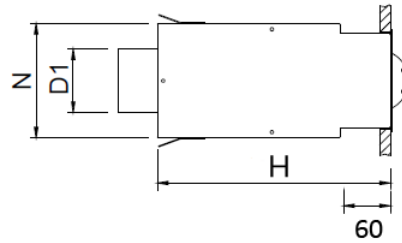


PLKB-PL	0.3 ≤ L ≤ 0.6			0.6 < L ≤ 1			1 < L ≤ 1.5			1.5 < L ≤ 2		
	D1	H	N	D1	H	N	D1	H	N	D1	H	N
KOBE 15	158	244	111	158	244	111	2x 158	244	111	2x 158	244	111
KOBE 20	158	244	111	158	244	111	2x 158	244	111	2x 198	284	111
KOBE 25	158	244	111	198	284	111	2x 198	284	111	2x 198	284	111
KOBE 30	198	284	111	198	284	111	2x 198	284	111	2x 198	284	111
KOBE 40	198	284	125	198	284	125	2x 198	284	125	2x 248	334	125
KOBE 50	198	284	135	198	284	135	2x 248	334	135	2x 248	334	135

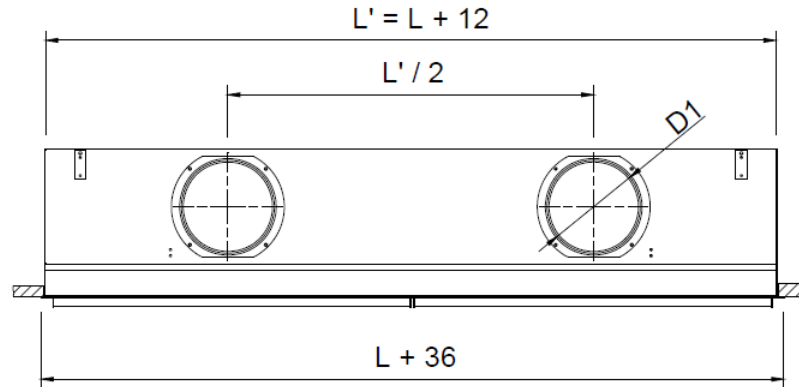
All dimensions in mm

PLKB-PM Plenum

PLKB-T-PM



PLKB-S-PM



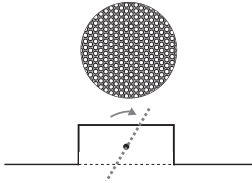
PLKB-S-PM	N	L ≤ 24		24 < L ≤ 36		36 < L ≤ 48		48 < L ≤ 60		60 < L ≤ 78 ⁴⁷ / ₆₄	
		D1	H	D1	H	D1	H	D1	H	D1	H
KOBE 15	127	150	244	150	244	150	244	(2x) 150	244	(2x) 150	244
KOBE 20	127	150	244	150	244	200	284	(2x) 150	284	(2x) 200	284
KOBE 25	127	150	244	200	284	200	284	(2x) 200	284	(2x) 200	284
KOBE 30	127	200	284	200	284	200	284	(2x) 200	284	(2x) 200	284
KOBE 40	146	200	284	200	284	250	334	(2x) 200	334	(2x) 250	334
KOBE 50	152	200	284	200	284	250	334	(2x) 250	334	(2x) 250	334

All dimensions in mm

PLKB-T-PM	H	L ≤ 24		24 < L ≤ 36		36 < L ≤ 48		48 < L ≤ 60		60 < L ≤ 78 ⁴⁷ / ₆₄	
		D1	N	D1	N	D1	N	D1	N	D1	N
KOBE 15	175	150	175	150	6 ⁷ / ₈	150	175	(2x) 150	175	(2x) 150	175
KOBE 20	175	150	175	150	6 ⁷ / ₈	200	225	(2x) 150	175	(2x) 200	225
KOBE 25	175	150	175	200	8 ⁷ / ₈	200	225	(2x) 200	225	(2x) 200	225
KOBE 30	175	200	225	200	8 ⁷ / ₈	200	225	(2x) 200	225	(2x) 200	225
KOBE 40	200	200	225	200	8 ⁷ / ₈	250	276	(2x) 200	276	(2x) 250	276
KOBE 50	200	200	225	200	8 ⁷ / ₈	250	276	(2x) 250	276	(2x) 250	276

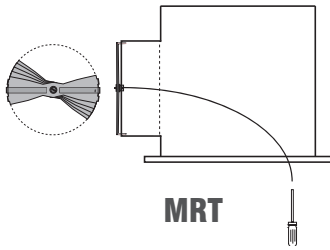
All dimensions in mm

Integrated Air Volume Dampers



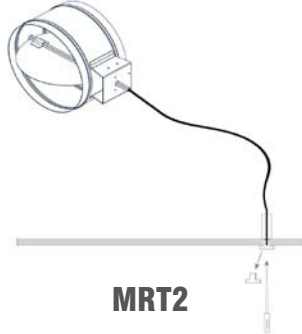
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Important Note: MRT, MRT2, EB and EB2 Damper Options are only available for KOO with 2 rows (Height 8" and 12").

Accessories

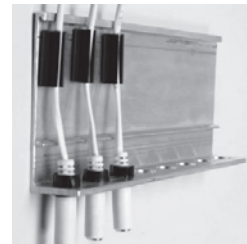
EB-SP1

Single Connector
Drywall Termination
Fixture for EB
dampers



EB-AB8

Eight Connector
Wall Bracket for EB
dampers



EB-SP8

Eight Connector
Drywall Termination
Fixture for EB
dampers



EB-REMOTE

Remote Control for
EB dampers





Diffuser Length (inches)	

Mounting	
PL	Mounting clips for PLKB plenum
PM	Mounting crossbar for installation without plenum

Finish	
M9016	Powder Coated White RAL 9016
R9010	Powder Coated White RAL 9010
R9005M	Powder Coated Matte Jet Black RAL 9005
RAL xxxx	Please Specify:

Plenum	
PLKB-S-PL	Side connection, PL mounting
PLKB-T-PL	Top (Back) connection, PL mounting
PLKB-S-PM	Side connection, PM mounting
PLKB-T-PM	Top (Back) connection, PM mounting

Insulation	
AL	1/2" Interior Accoustical Liner
ALC	1/2" Interior Closed Cell Accoustical Insulation
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, cable thru drywall

Cable Length (MRT2 or EB2)	

Project:	
Engineer:	
Architect:	
Contractor:	



KOO Series Adjustable Long Throw Multi-Jet Nozzle Diffuser

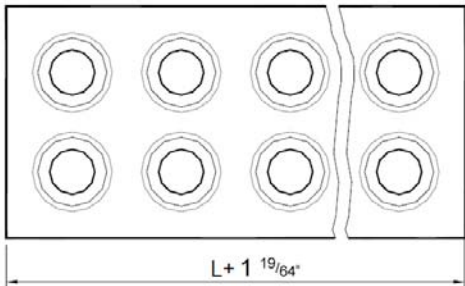
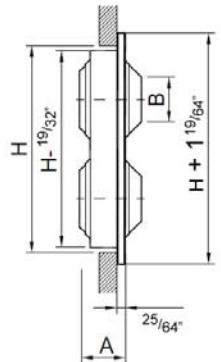
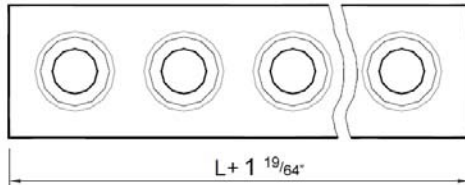
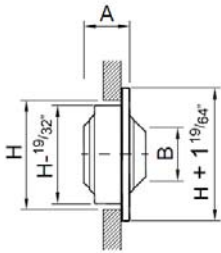
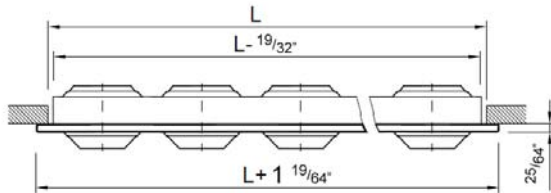
Material | Aluminum jet nozzles and galvanized steel panel

Air Pattern | Long throw, independently adjustable directional jets



KOO
by MADEL®

PATENTED

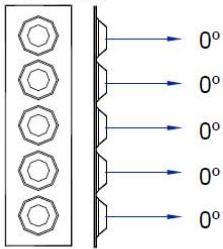


Select Dimension						
✓	List Size	Nb Nozzles	L	H	A	B
	8 x 4	2 x 1	7 7/8"	3 15/16"	1 3/8"	1 47/64"
	12 x 4	3 x 1	11 13/16"	3 15/16"	1 3/8"	1 47/64"
	16 x 4	4 x 1	15 3/4"	3 15/16"	1 3/8"	1 47/64"
	20 x 4	5 x 1	19 11/16"	3 15/16"	1 3/8"	1 47/64"
	24 x 4	6 x 1	23 5/8"	3 15/16"	1 3/8"	1 47/64"
	28 x 4	7 x 1	27 9/16"	3 15/16"	1 3/8"	1 47/64"
	32 x 4	8 x 1	31 1/2"	3 15/16"	1 3/8"	1 47/64"
	36 x 4	9 x 1	35 7/16"	3 15/16"	1 3/8"	1 47/64"
	40 x 4	10 x 1	39 3/8"	3 15/16"	1 3/8"	1 47/64"
	8 x 8	2 x 2	7 7/8"	7 7/8"	1 3/8"	1 47/64"
	12 x 8	3 x 2	11 13/16"	7 7/8"	1 3/8"	1 47/64"
	16 x 8	4 x 2	15 3/4"	7 7/8"	1 3/8"	1 47/64"
	20 x 8	5 x 2	19 11/16"	7 7/8"	1 3/8"	1 47/64"
	24 x 8	6 x 2	23 5/8"	7 7/8"	1 3/8"	1 47/64"
	28 x 8	7 x 2	27 9/16"	7 7/8"	1 3/8"	1 47/64"
	32 x 8	8 x 2	31 1/2"	7 7/8"	1 3/8"	1 47/64"
	36 x 8	9 x 2	35 7/16"	7 7/8"	1 3/8"	1 47/64"
	40 x 8	10 x 2	39 3/8"	7 7/8"	1 3/8"	1 47/64"
	12 x 6	2 x 1	11 13/16"	5 29/32"	2 1/4"	2 13/32"
	18 x 6	3 x 1	17 23/32"	5 29/32"	2 1/4"	2 13/32"
	24 x 6	4 x 1	23 5/8"	5 29/32"	2 1/4"	2 13/32"
	30 x 6	5 x 1	29 17/32"	5 29/32"	2 1/4"	2 13/32"
	36 x 6	6 x 1	35 7/16"	5 29/32"	2 1/4"	2 13/32"
	42 x 6	7 x 1	41 11/32"	5 29/32"	2 1/4"	2 13/32"
	48 x 6	8 x 1	47 1/4"	5 29/32"	2 1/4"	2 13/32"
	12 x 12	2 x 2	11 13/16"	11 13/16"	2 1/4"	2 13/32"
	18 x 12	3 x 2	17 23/32"	11 13/16"	2 1/4"	2 13/32"
	24 x 12	4 x 2	23 5/8"	11 13/16"	2 1/4"	2 13/32"
	30 x 12	5 x 2	29 17/32"	11 13/16"	2 1/4"	2 13/32"
	36 x 12	6 x 2	35 7/16"	11 13/16"	2 1/4"	2 13/32"
	42 x 12	7 x 2	41 11/32"	11 13/16"	2 1/4"	2 13/32"
	48 x 12	8 x 2	47 1/4"	11 13/16"	2 1/4"	2 13/32"

Balancing Position

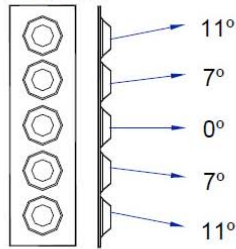
POSITION 1 (0°)

KOO Lx4
KOO Lx6



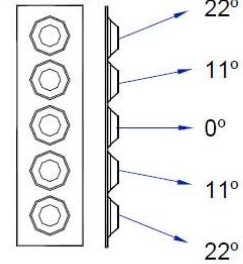
POSITION 2 (22°)

KOO Lx4
KOO Lx6



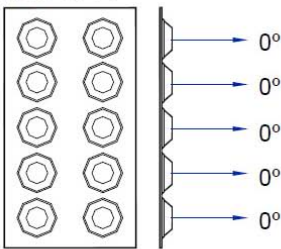
POSITION 3 (45°)

KOO Lx4
KOO Lx6



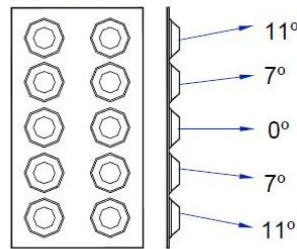
POSITION 1 (0°)

KOO Lx8
KOO Lx12



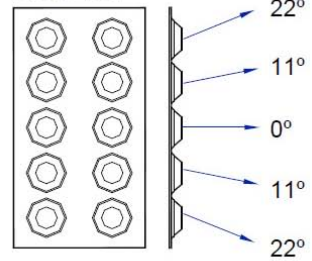
POSITION 2 (22°)

KOO Lx8
KOO Lx12

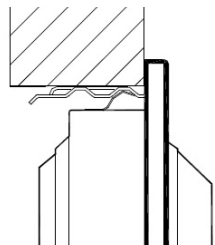


POSITION 3 (45°)

KOO Lx8
KOO Lx12

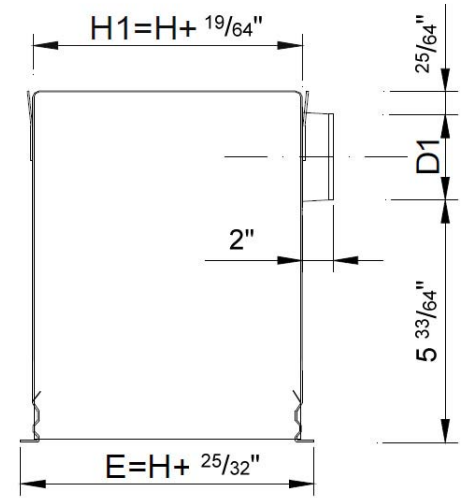
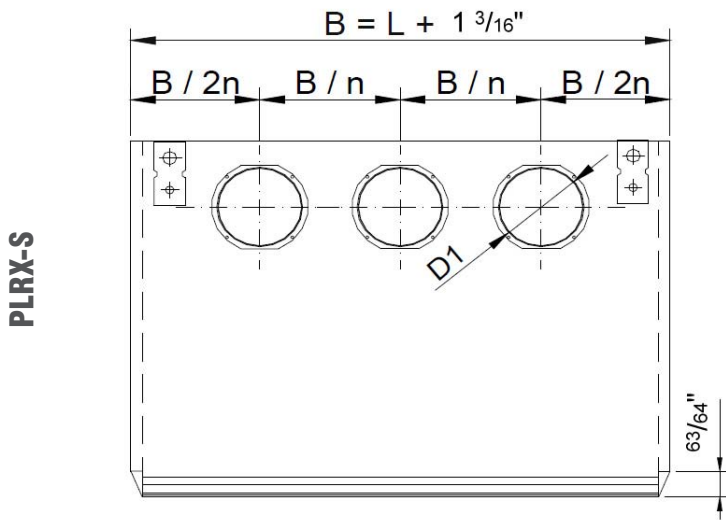
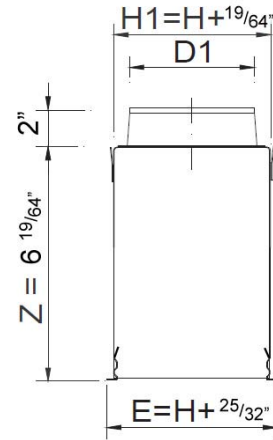
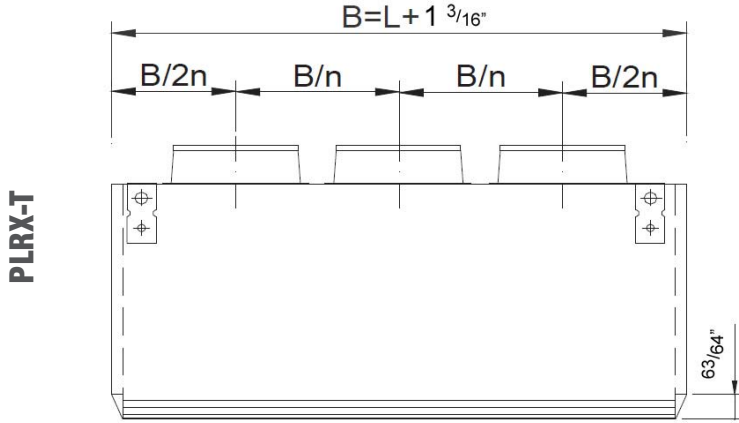


Spring Clips Mounting



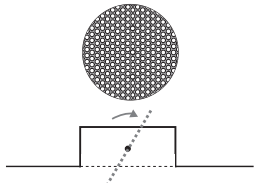
Invisible fixing by means of pressure clips with security hooks for ceiling installation. Requires PLRX plenum or CM mounting frame.

PLRX Plenum



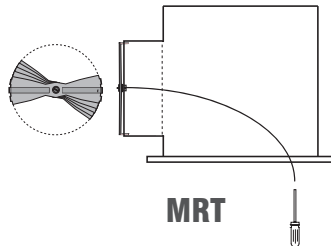
Neck Diameter and Quantity (n x D)						
L	< 24"	< 36"	< 40"	< 48"	>= 48"	
H	4"	1x 4"D	2x 4"D	2x 4"D	2x 4"D	3x 4"D
	6"	1x 5"D	2x 5"D	2x 5"D	2x 5"D	3x 5"D
	8"	1x 8"D	1x 8"D	2x 8"D	2x 8"D	2x 8"D
	12"	1x 10"D	1x 10"D	1x 10"D	2x 10"D	2x 10"D

Integrated Air Volume Dampers



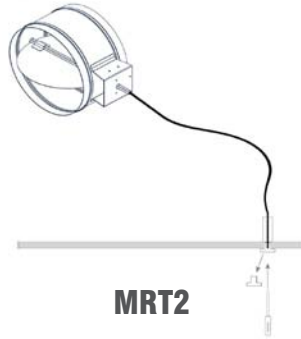
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Important Note: MRT, MRT2, EB and EB2 Damper Options are only available for KOO with 2 rows (Height 8" and 12").

Accessories

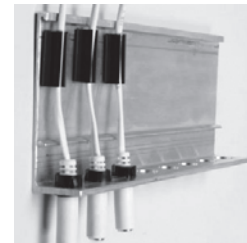
EB-SP1

Single Connector
Drywall Termination
Fixture for EB
dampers



EB-AB8

Eight Connector
Wall Bracket for EB
dampers



EB-SP8

Eight Connector
Drywall Termination
Fixture for EB
dampers



EB-REMOTE

Remote Control for
EB dampers





Balancing Position (optional)	
1	Straight - 0 Degrees (Default)
2	22 Degrees Spread
3	45 Degrees Spread

Mounting	
S	Invisible fixing by means of pressure clips
T	Visible Screws

Finish	
M9016	Powder Coated White RAL 9016
M9006	Powder Coated Metallic Grey RAL 9006
RAL xxxx	Please Specify:

Plenum	
PLRX-T	Top (Back) connection
PLRX-S	Side connection

Insulation	
AL	1/2" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, cable thru drywall

Cable Length (MRT2 or EB2)	

Project:
Engineer:
Architect:
Contractor:



KOO Series Adjustable Long Throw Multi-Jet Nozzle Diffuser

Material | Aluminum jet nozzles and galvanized steel panel

Air Pattern | Long throw, independently adjustable directional jets

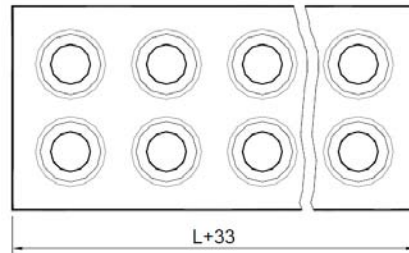
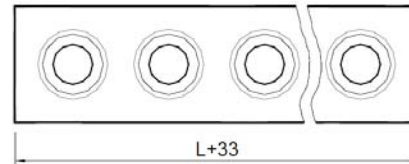
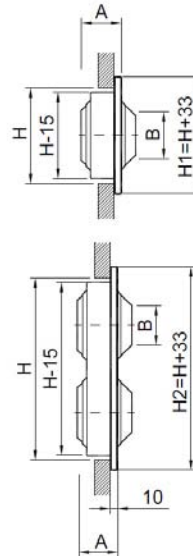
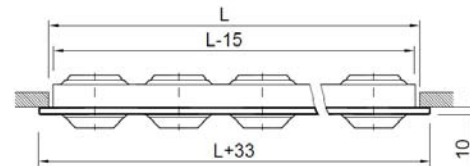


KOO
by MADEL®

PATENTED

Select Dimension		
✓	List Size L x H	Nozzles Qty
	200 x 100	2 x 1
	300 x 100	3 x 1
	400 x 100	4 x 1
	500 x 100	5 x 1
	600 x 100	6 x 1
	700 x 100	7 x 1
	800 x 100	8 x 1
	900 x 100	9 x 1
	1000 x 100	10 x 1
	200 x 200	2 x 2
	300 x 200	3 x 2
	400 x 200	4 x 2
	500 x 200	5 x 2
	600 x 200	6 x 2
	700 x 200	7 x 2
	800 x 200	8 x 2
	900 x 200	9 x 2
	1000 x 200	10 x 2
	300 x 150	2 x 1
	450 x 150	3 x 1
	600 x 150	4 x 1
	750 x 150	5 x 1
	900 x 150	6 x 1
	1050 x 150	7 x 1
	1200 x 150	8 x 1
	300 x 300	2 x 2
	450 x 300	3 x 2
	600 x 300	4 x 2
	750 x 300	5 x 2
	900 x 300	6 x 2
	1050 x 300	7 x 2
	1200 x 300	8 x 2

All dimensions in mm



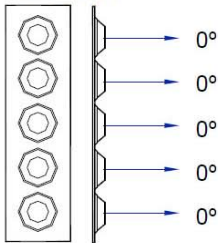
H	A	B
100	35	44
150	57	61
200	35	44
300	57	61

All dimensions in mm

Balancing Position

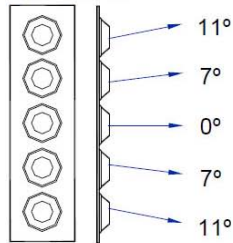
POSITION 1 (0°)

KOO Lx100
KOO Lx150



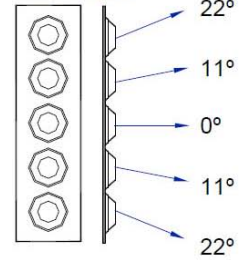
POSITION 2 (22°)

KOO Lx100
KOO Lx150



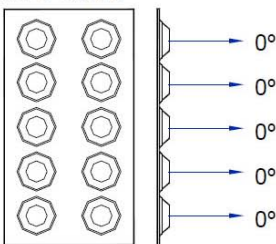
POSITION 3 (45°)

KOO Lx100
KOO Lx150



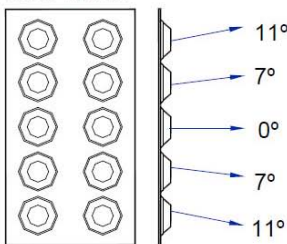
POSITION 1 (0°)

KOO Lx200
KOO Lx300



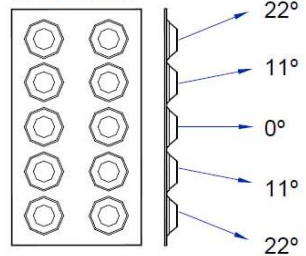
POSITION 2 (22°)

KOO Lx200
KOO Lx300

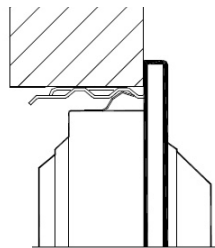


POSITION 3 (45°)

KOO Lx200
KOO Lx300



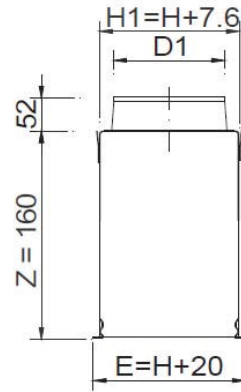
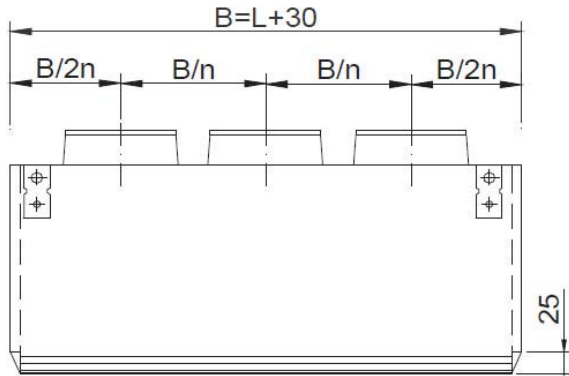
Spring Clips Mounting



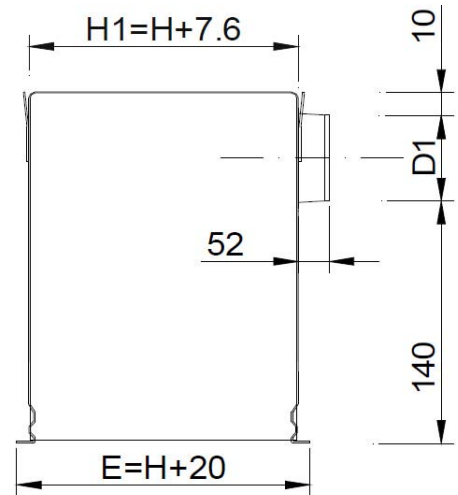
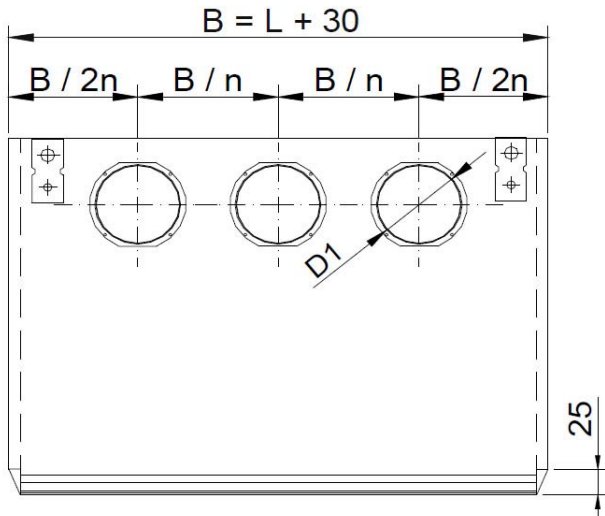
Invisible fixing by means of pressure clips with security hooks for ceiling installation. Requires PLRX plenum or CM mounting frame.

PLRX Plenum

PLRX-T



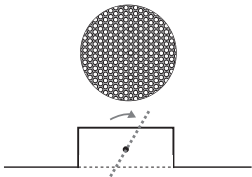
PLRX-S



Neck Diameter and Quantity (n x D)						
L		< 600	< 900	< 1000	< 1200	>= 1200
H	100	1x 98	2x 98	2x 98	2x 98	3x 98
	150	1x 123	2x 123	2x 123	2x 123	3x 123
	200	1x 198	1x 198	2x 198	2x 198	2x 198
	300	1x 248	1x 248	1x 248	2x 248	2x 248

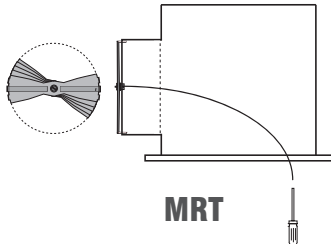
All dimensions in mm

Integrated Air Volume Dampers



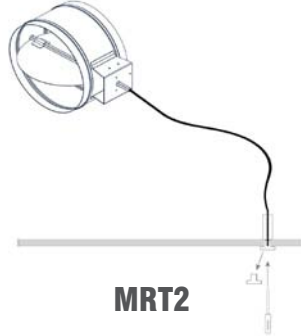
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Important Note: MRT, MRT2, EB and EB2 Damper Options are only available for KOO with 2 rows (Height 200 mm and 300 mm).

Accessories

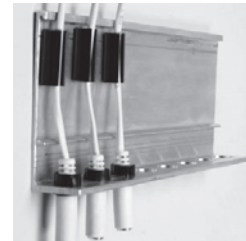
EB-SP1

Single Connector
Drywall Termination
Fixture for EB
dampers



EB-AB8

Eight Connector
Wall Bracket for EB
dampers



EB-SP8

Eight Connector
Drywall Termination
Fixture for EB
dampers



EB-REMOTE

Remote Control for
EB dampers



Balancing Position (optional)	
1	Straight - 0 Degrees (Default)
2	22 Degrees Spread
3	45 Degrees Spread

Mounting	
S	Invisible fixing by means of pressure clips
T	Visible Screws

Finish	
M9016	Powder Coated White RAL 9016
M9006	Powder Coated Metallic Grey RAL 9006
RAL xxxx	Please Specify:

Plenum	
PLRX-T	Top (Back) connection
PLRX-S	Side connection

Insulation	
AL	1/2" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, cable thru drywall

Cable Length (MRT2 or EB2)	

Project:
Engineer:
Architect:
Contractor:

LOF/LAIF Series Architectural Narrow Slot Diffusers

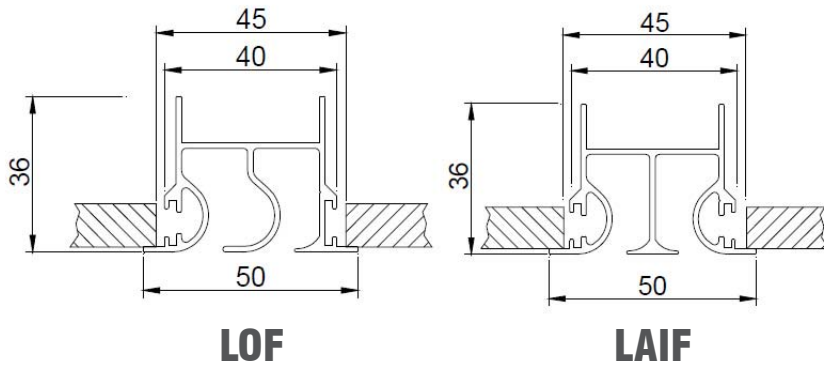
Material | Extruded aluminum

Air Pattern | Fix

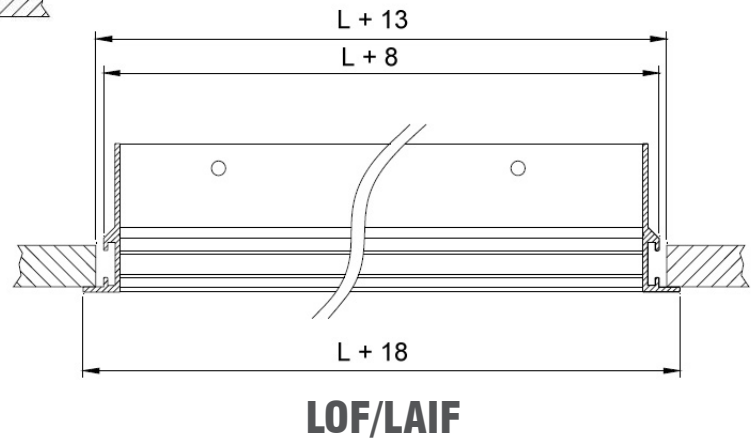
Ceiling Types | Open and Closed



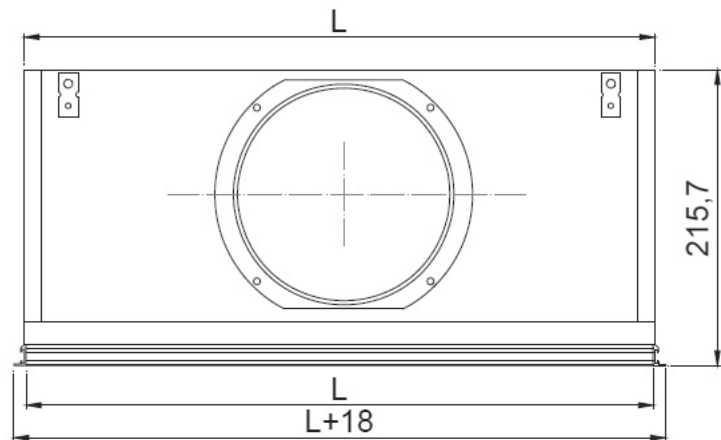
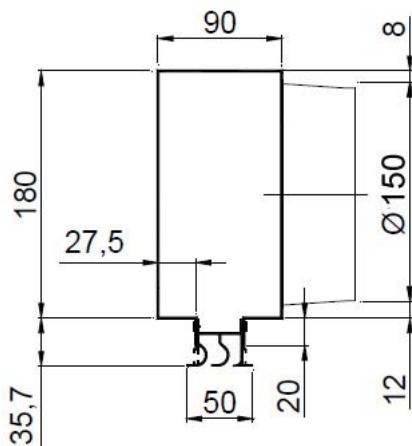
LAIF
by MADEL®



PATENTED



PLF Plenum



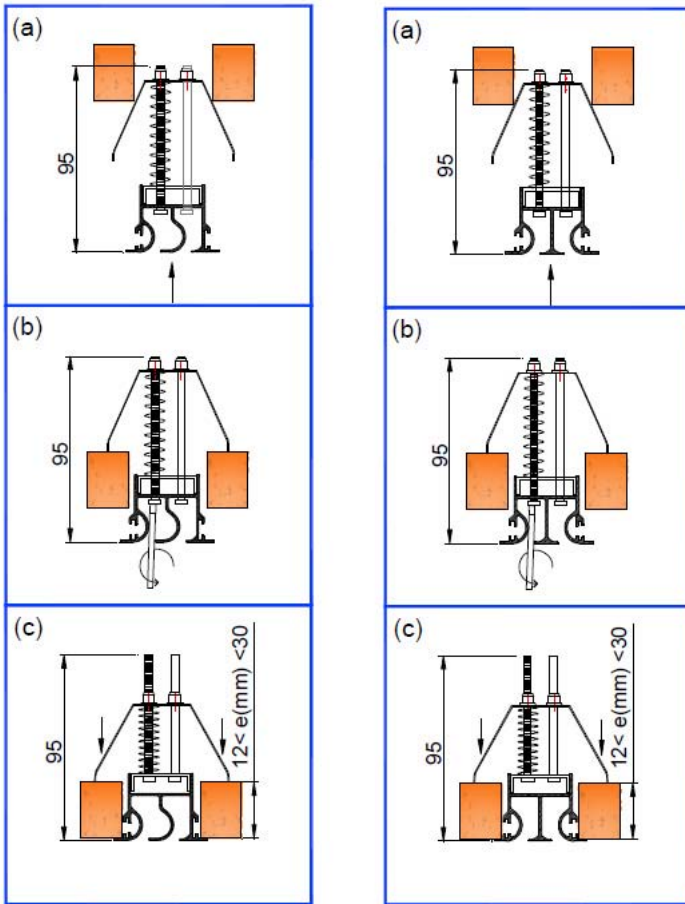
L = Length or List Size
Note: two 150 mm collars when ≥ 1500 mm

PM Mounting Kit For LOF/LAIF

PM Mounting Kit greatly facilitates and accelerates the diffuser installation, and works with or without plenum.

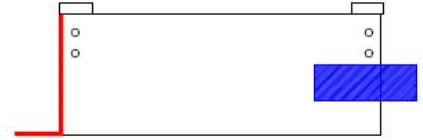
LOF-AR (PM)

LAIF-AR (PM)

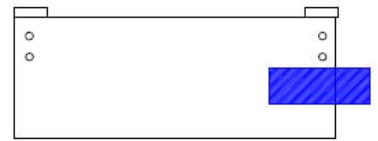


Continuous Sections

-ARI



-INT

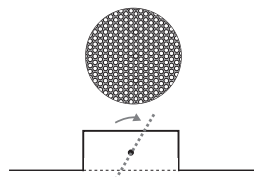


-ARD

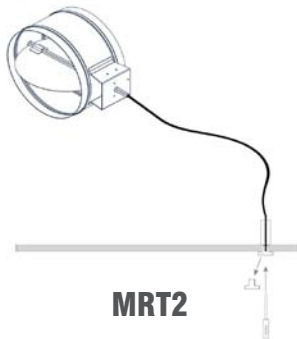


Maximum length for a single section is 2000 mm. Longer continuous diffusers must be divided into smaller sections.

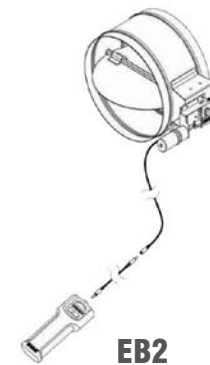
Integrated Air Volume Dampers



R
Perforated damper +
air equalizer



MRT2
Manually operated damper,
cable through drywall with
termination fixture



EB2
Battery operated electro-balance damper
with remote control, cable through
drywall with termination fixture

SUBMITTAL

LOF/LAIF (METRIC)

REV 1 - PAGE 3/3



Select Model	
LOF	One-Way
LAIF	Two-Way

Listed L (inches)

End Borders	
AR	Two End Borders
ARI	Left End Border Only
ARD	Right End Border Only
INT	No End Border (Central Sections)

Mounting	
PM	Concealed Spring Clips (LOOK-CM only)
X	No Mounting

Finish	
/M9016	Powder Coated White RAL 9016
/M9010	Powder Coated Off White RAL 9010
/M9005	Powder Coated Black RAL 9005
/RAL xxxx	Other (specify) :

Plenum	
PLF	Plenum for LOF/LAIF

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT2	Manually operated, drywall termination fixture
EB2	Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)	

Insulation	
R6	2" (50mm) Exterior R6 Thermal Insulation

Project:

Engineer:

Architect:

Contractor:

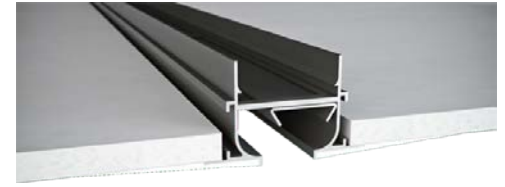


LOOK Series Hidden Linear Slot Diffuser

Material | Extruded aluminum and extruded PVC sector deflection vanes

Air Pattern | Adjustable

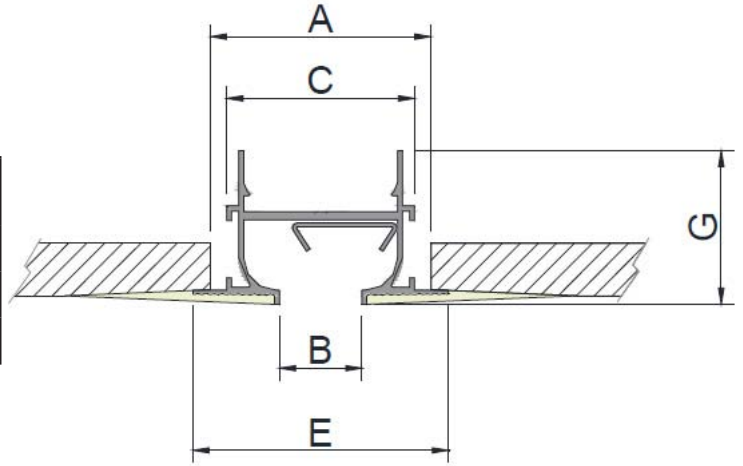
Ceiling Types | Open and Closed



LOOK
by MADEL®

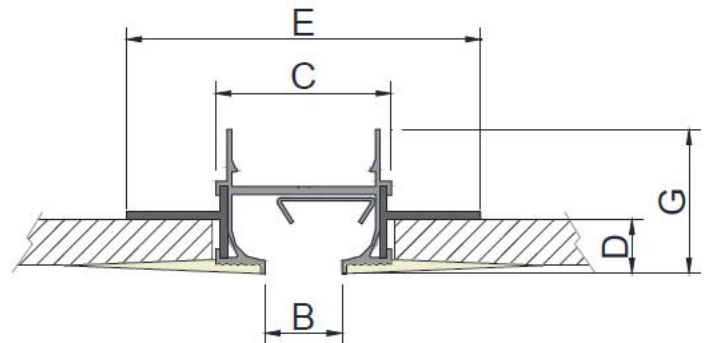
LOOK-CM

Slot Width	A	B	C	G	E
20	2 11/64"	3/4"	1 27/32"	1 1/2"	2 1/2"
30	3 5/16"	1 3/16"	2 63/64"	1 25/32"	3 53/64"
40	3 45/64"	1 1/2"	3 25/64"	1 25/32"	4 7/32"



LOOK-SM

Slot Width	B	C	D	G	E
20	3/4"	1 27/32"	35/64"	1 1/2"	3 23/32"
30	1 3/16"	2 63/64"	35/64"	1 25/32"	4 55/64"
40	1 1/2"	3 25/64"	35/64"	1 25/32"	5 1/4"



Continuous Sections



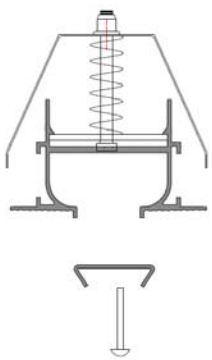
Maximum length for a single section is 78". Longer continuous diffusers must be divided into smaller sections.



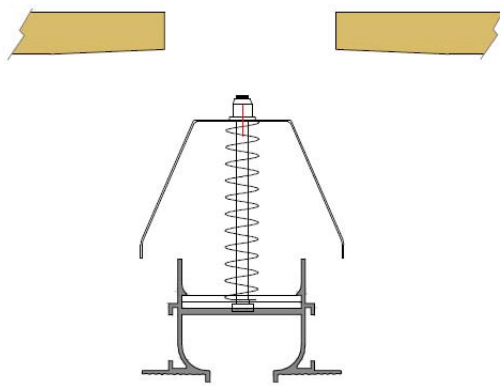
PM Mounting Kit For LOOK-CM

PM Mounting Kit greatly facilitates and accelerates the diffuser installation, and works with or without plenum. Only for LOOK-CM.

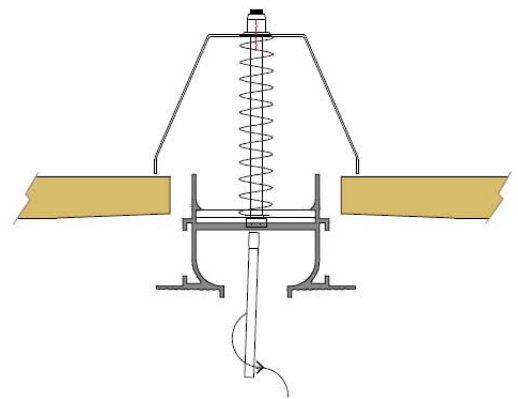
PATENTED



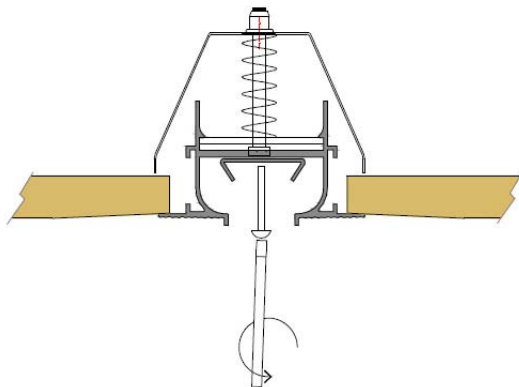
1. Remove deflector



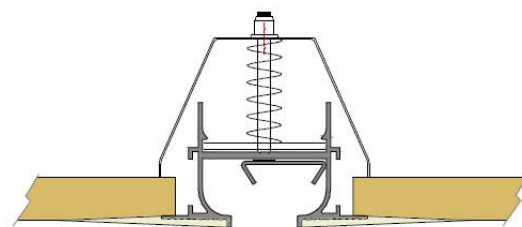
2. Insert in ceiling



3. Tighten clip with screwdriver



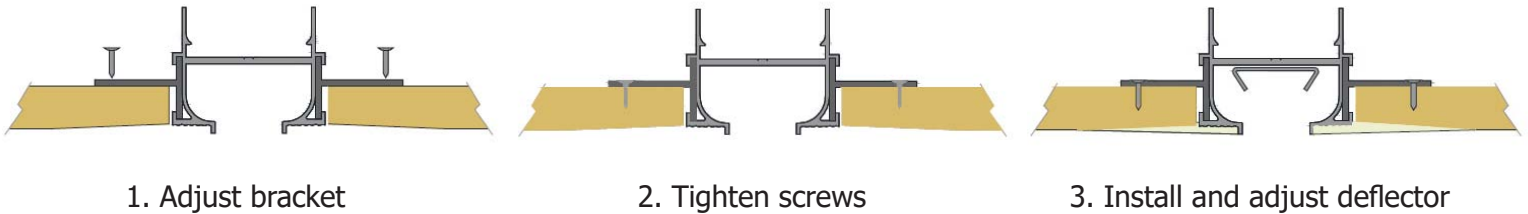
4. Reinstall deflector



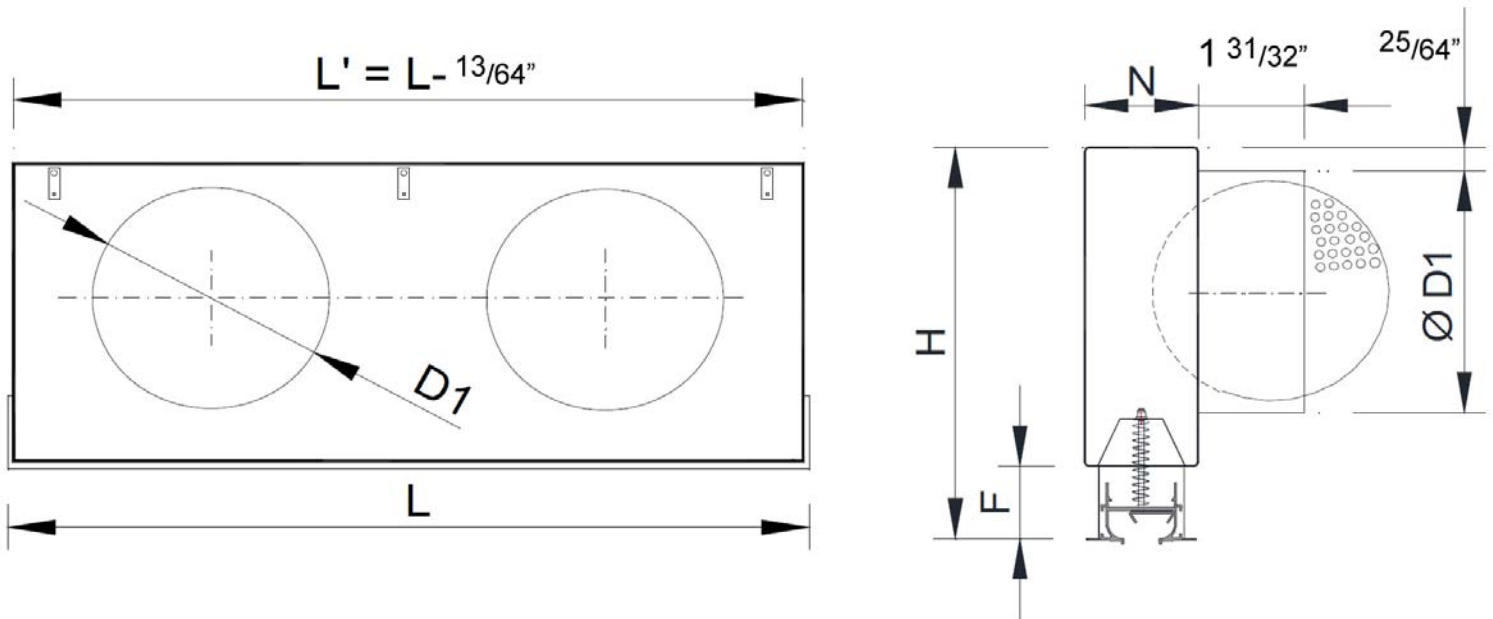
4. Adjust deflector for desired airflow

L Bracket For LOOK-SM

L Brackets works with or without plenum. Only for LOOK-SM.

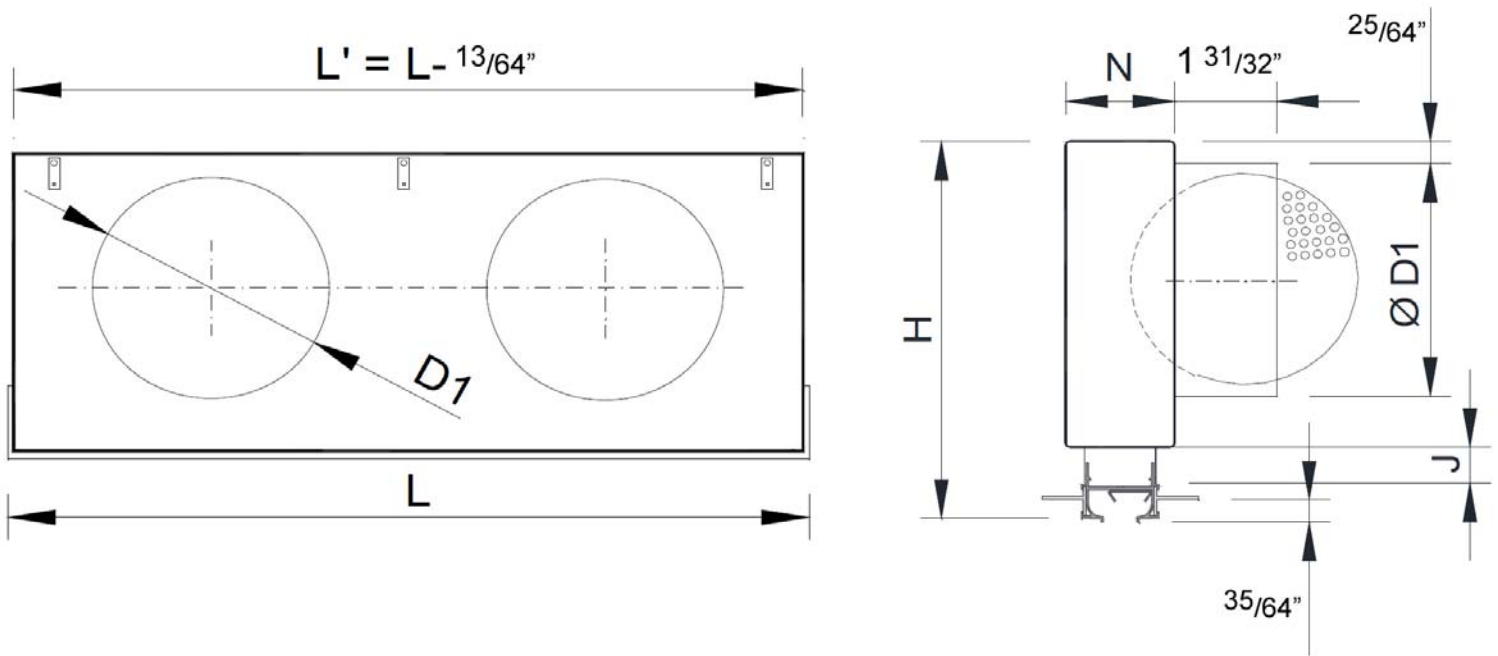


PLOK-CM Plenum



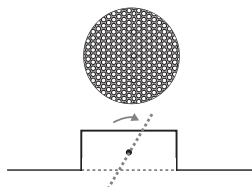
Slot Width	N	F	L ≤ 20"		L ≤ 48"		L ≤ 60"		L ≤ 78"	
			H	D1	H	D1	H	D1	H	D1
20	2 23/32"	1 27/64"	10 5/64"	1x 6"	10 5/64"	1x 6"	10 5/64"	1x 6"	10 5/64"	2x 6"
30	3 55/64"	1 21/32"	10 5/64"	1x 6"	10 5/64"	1x 6"	10 5/64"	1x 6"	10 5/64"	2x 6"
40	4 1/4"	1 21/32"	10 5/64"	1x 6"	11 21/32"	1x 8"	11 21/32"	2x 8"	11 21/32"	2x 8"

PLOK-SM Plenum



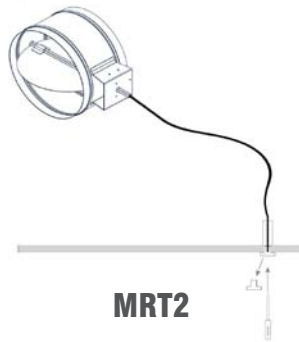
Slot Width	N	J	L ≤ 20"		L ≤ 48"		L ≤ 60"		L ≤ 78"	
			H	D1	H	D1	H	D1	H	D1
20	2 31/64"	9/16"	10 5/64"	1x 6"	10 5/64"	1x 6"	10 5/64"	1x 6"	10 5/64"	2x 6"
30	3 5/8"	51/64"	10 5/64"	1x 6"	10 5/64"	1x 6"	10 5/64"	1x 6"	10 5/64"	2x 6"
40	4 1/64"	51/64"	10 5/64"	1x 6"	11 21/32"	1x 8"	11 21/32"	2x 8"	11 21/32"	2x 8"

Integrated Air Volume Dampers



R

Perforated damper +
air equalizer



MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture



Select Model		
✓	LOOK	Hidden Linear Slot Diffuser

Flange		
	CM	Large Flange
	SM	Short Flange

End Borders		
	AR	Two End Borders
	ARI	Left End Border Only
	ARD	Right End Border Only
	INT	No End Border (Central Sections)

Mounting		
	PM	Concealed Spring Clips (LOOK-CM only)
	L	L Brackets (LOOK-SM only)

Finish		
	/M9016	Powder Coated White RAL 9016
	/M9010	Powder Coated Off White RAL 9010
	/M9005	Powder Coated Black RAL 9005
	/RAL xxxx	Other (specify) :

Plenum		
	PLOK-CM	Plenum for LOOK-CM
	PLOK-SM	Plenum for LOOK-SM

Neck-Installed Air Volume Damper		
	R	Perforated air volume damper/equalizer
	MRT2	Manually operated, drywall termination fixture
	EB2	Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)		

Insulation		
	R6	2" (50mm) Exterior R6 Thermal Insulation

Airflow Balancing (Optional)		
	W1	1 Way
	V	Vertical

Listed L (inches)		

Slot Width		
	20	3/4"
	30	1 3/16"
	40	1 1/2"

Project:	
Engineer:	
Architect:	
Contractor:	

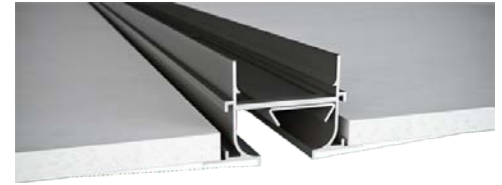


LOOK Series Hidden Linear Slot Diffuser

Material | Extruded aluminum and extruded PVC sector deflection vanes

Air Pattern | Adjustable

Ceiling Types | Open and Closed

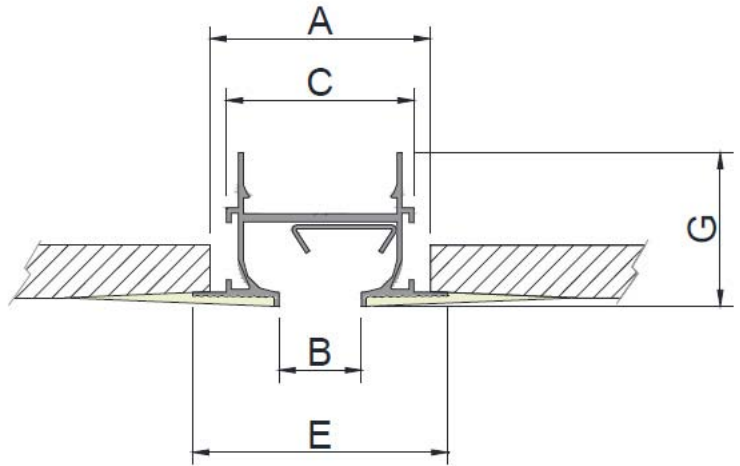


LOOK
by MADEL®

LOOK-CM

Slot Width	A	B	C	G	E
20	55	20	47	38.2	63.5
30	84	30	76	45.2	97.3
40	94	40	86	45.2	107.3

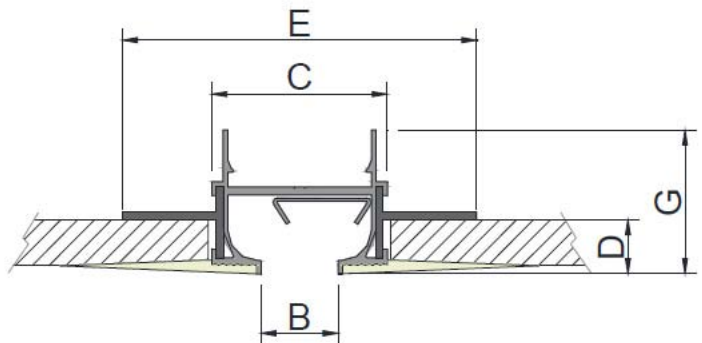
All dimensions in mm



LOOK-SM

Slot Width	B	C	D	G	E
20	20	47	14	38.2	94.3
30	30	76	14	45.2	123.5
40	40	86	14	45.2	133.5

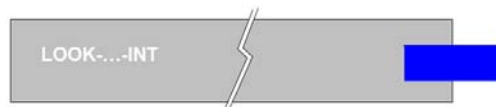
All dimensions in mm



Continuous Sections



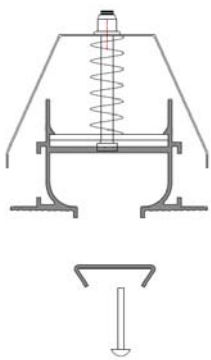
Maximum length for a single section is 2 meters. Longer continuous diffusers must be divided into smaller sections.



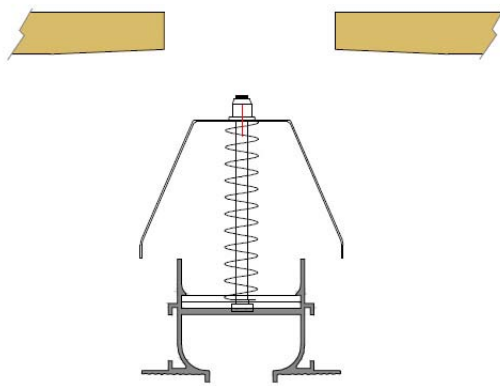
PM Mounting Kit For LOOK-CM

PM Mounting Kit greatly facilitates and accelerates the diffuser installation, and works with or without plenum. Only for LOOK-CM.

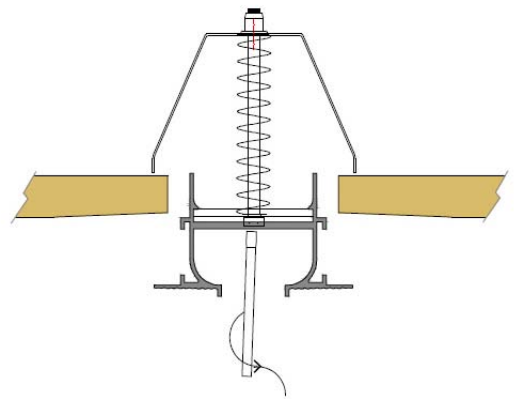
PATENTED



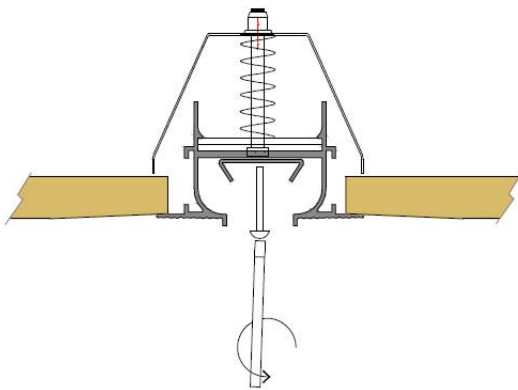
1. Remove deflector



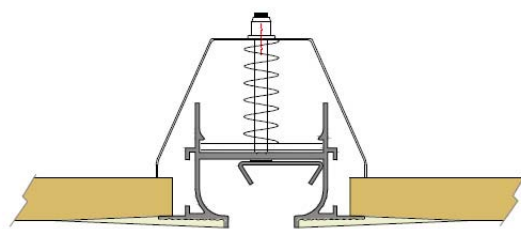
2. Insert in ceiling



3. Tighten clip with screwdriver



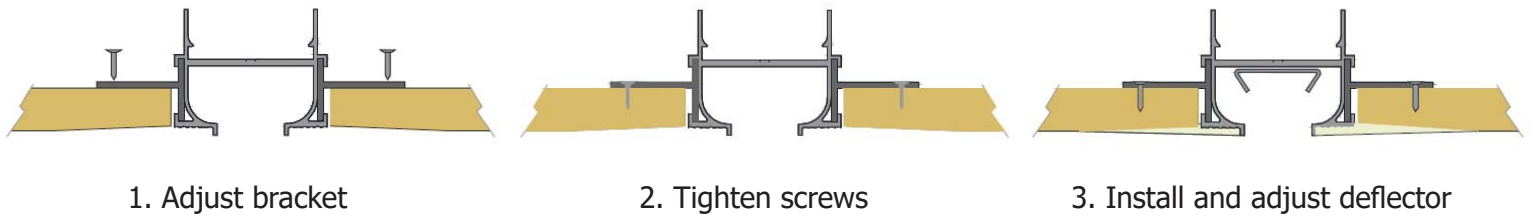
4. Reinstall deflector



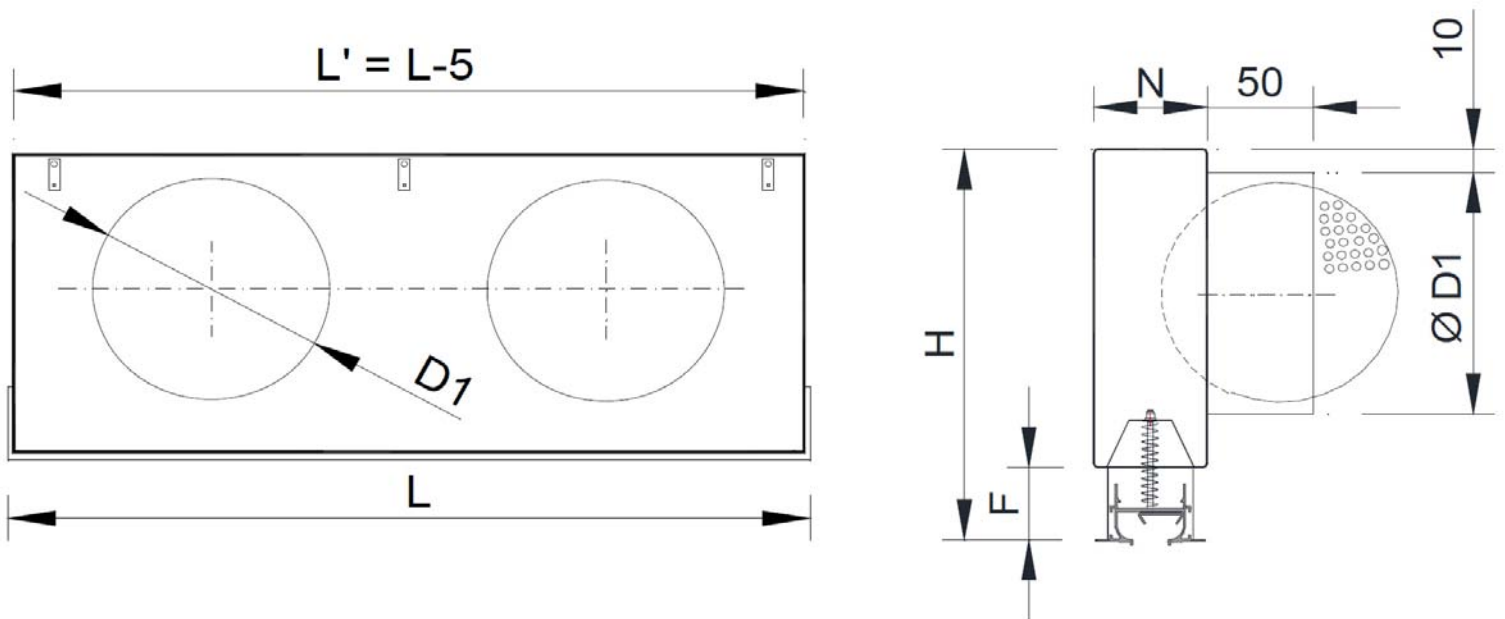
4. Adjust deflector for desired airflow

L Bracket For LOOK-SM

L Brackets works with or without plenum. Only for LOOK-SM.

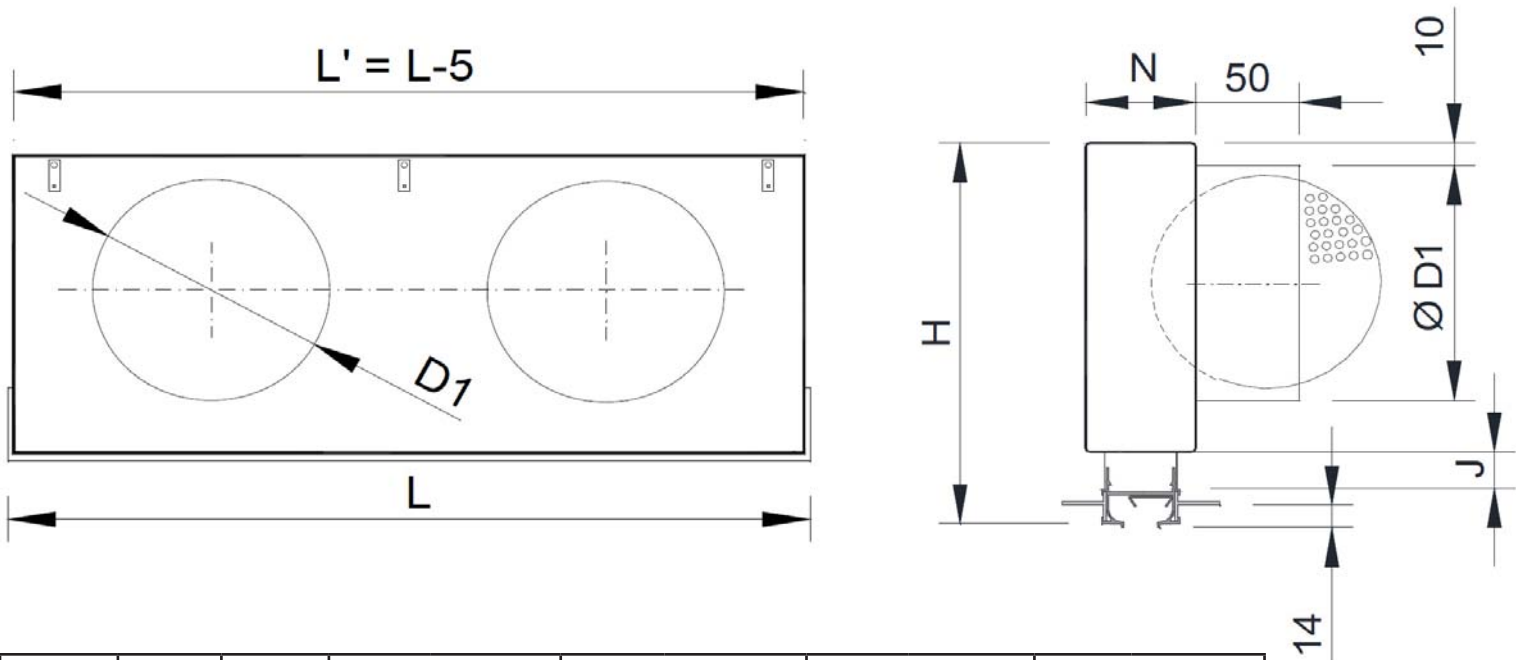


PLOK-CM Plenum



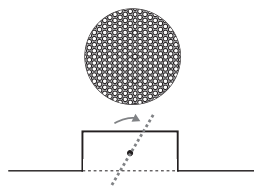
Slot Width	N	F	L ≤ 500		L ≤ 1200		L ≤ 1500		L ≤ 2000	
			H	D1	H	D1	H	D1	H	D1
20	69	36	256	1x 148	256	1x 148	256	1x 148	256	2x 148
30	98	42	256	1x 148	256	1x 148	256	1x 148	256	2x 148
40	108	42	256	1x 148	296	1x 198	296	2x 198	296	2x 198

PLOK-SM Plenum

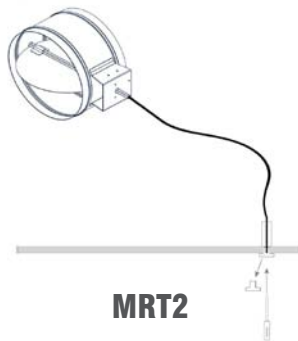


Slot Width	N	J	L ≤ 500		L ≤ 1200		L ≤ 1500		L ≤ 2000	
			H	D1	H	D1	H	D1	H	D1
20	63	14.3	256	1x 148	256	1x 148	256	1x 148	256	2x 148
30	92	20.3	256	1x 148	256	1x 148	256	1x 148	256	2x 148
40	102	20.3	256	1x 148	296	1x 198	296	2x 198	296	2x 198

Integrated Air Volume Dampers



R
Perforated damper +
air equalizer



MRT2
Manually operated damper,
cable through drywall with
termination fixture



EB2
Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

SUBMITTAL

LOOK (METRIC)

REV 1 - PAGE 5/5



Select Model		
✓	LOOK	Hidden Linear Slot Diffuser

Flange		
	CM	Large Flange
	SM	Short Flange

End Borders		
	AR	Two End Borders
	ARI	Left End Border Only
	ARD	Right End Border Only
	INT	No End Border (Central Sections)

Mounting		
	PM	Concealed Spring Clips (LOOK-CM only)
	L	L Brackets (LOOK-SM only)

Finish		
	/M9016	Powder Coated White RAL 9016
	/M9010	Powder Coated Off White RAL 9010
	/M9005	Powder Coated Black RAL 9005
	/RAL xxxx	Other (specify) :

Plenum		
	PLOK-CM	Plenum for LOOK-CM
	PLOK-SM	Plenum for LOOK-SM

Neck-Installed Air Volume Damper		
	R	Perforated air volume damper/equalizer
	MRT2	Manually operated, drywall termination fixture
	EB2	Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)		

Insulation		
	R6	2" (50mm) Exterior R6 Thermal Insulation

Airflow Balancing (Optional)		
	W1	1 Way
	V	Vertical

Listed L (inches)		

Slot Width		
	20	20 mm
	30	30 mm
	40	40 mm

Project:	
Engineer:	
Architect:	
Contractor:	

LOOK-A90 Series

Inactive 90° Angle for LOOK Hidden Slot Diffuser

Material | Extruded aluminum frame and galvanized steel deflector

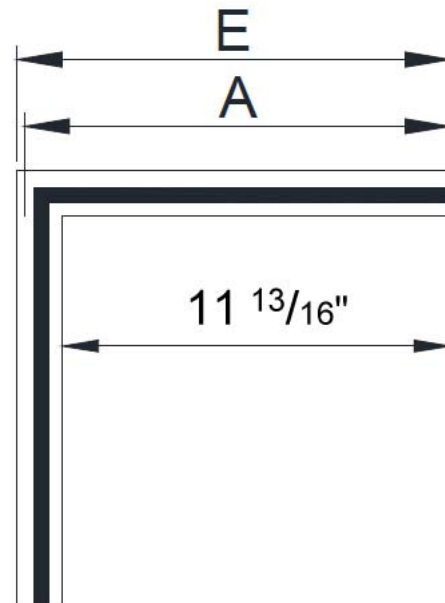
Air Pattern | Adjustable

Ceiling Types | Open and Closed

Slot Width	E	A
20 (3/4")	14 21/64"	14 9/64"
30 (1 3/16")	15 5/8"	15 25/64"
40 (1 1/2")	16 1/32"	15 25/32"

Select Model	
<input checked="" type="checkbox"/>	LOOK-A90

Select Finish	
<input type="checkbox"/>	Powder Coated White RAL 9016
<input type="checkbox"/>	Powder Coated Off White RAL 9010
<input type="checkbox"/>	Powder Coated Black RAL 9005
<input type="checkbox"/>	Other RAL (specify) :



Project:

Engineer:

Architect:

Contractor:

LOOK-A90 Series Inactive 90° Angle for LOOK Hidden Slot Diffuser

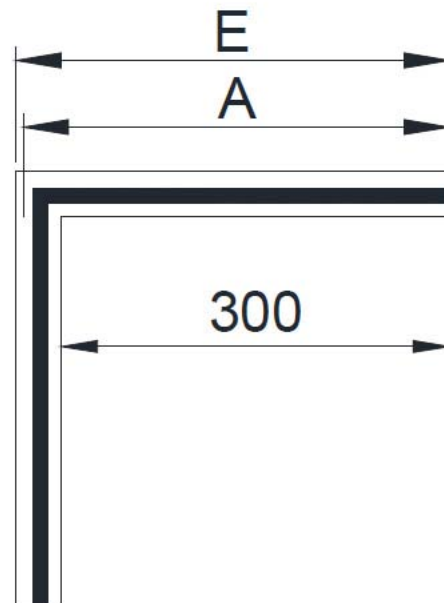
Material | Extruded aluminum frame and galvanized steel deflector

Air Pattern | Adjustable

Ceiling Types | Open and Closed

Slot Width	E	A
20	364	359
30	397	391
40	407	401

All dimensions in mm



Select Model	
<input checked="" type="checkbox"/>	LOOK-A90

Select Finish	
<input type="checkbox"/>	Powder Coated White RAL 9016
<input type="checkbox"/>	Powder Coated Off White RAL 9010
<input type="checkbox"/>	Powder Coated Black RAL 9005
<input type="checkbox"/>	Other RAL (specify) :

Project:	
Engineer:	
Architect:	
Contractor:	

LSD Series High Induction Linear Slot Diffuser

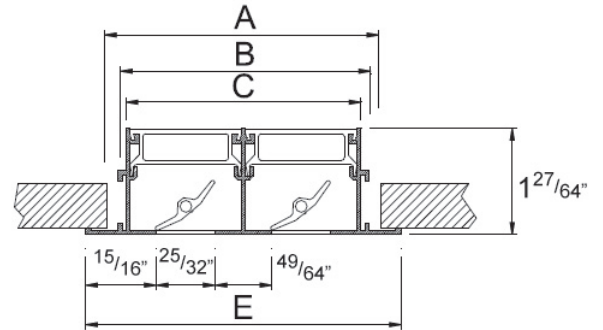
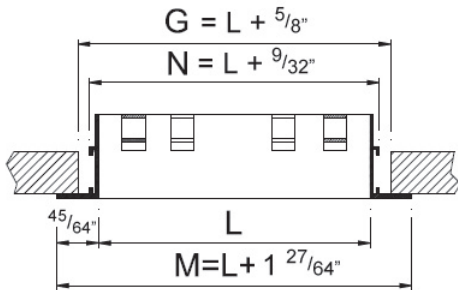
Material | Extruded aluminum and extruded PVC sectored deflection vanes

Air Pattern | Adjustable

Ceiling Types | Open and Closed



LSD
by MADEL®



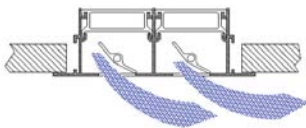
Select Length

✓	Standard Length	L	G	M
	Standard 36"	35 7/16"	36 1/16"	36 27/32"
	Standard 48"	46 19/64"	46 59/64"	47 3/4"
	Standard 60"	59 1/16"	59 11/16"	60 15/32"
	Standard 72"	70 55/64"	71 1/2"	72 9/32"
	Custom (specify) :		L + 5/8"	L + 1 27/64"

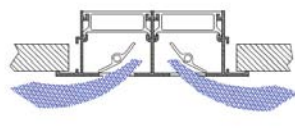
Select Number of Slots

✓	Nb Slots	E	A	B	C
	1	2 43/64"	2 11/64"	1 27/32"	1 19/32"
	2	4 7/32"	3 47/64"	3 25/64"	3 9/64"
	3	5 49/64"	5 9/32"	4 15/16"	4 45/64"
	4	7 5/16"	6 13/16"	6 31/64"	6 1/4"

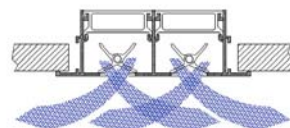
Airflow Balancing



1 Way



2 Way

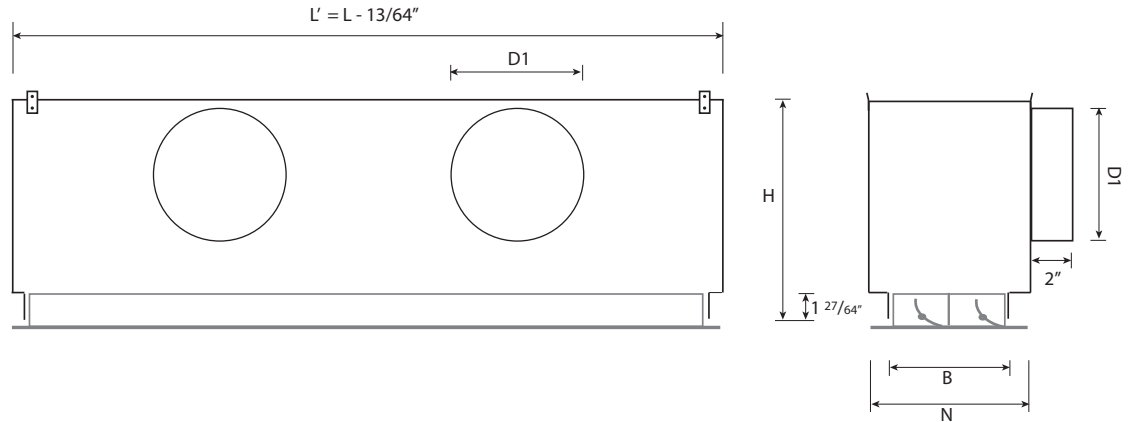


2 Way Alternate
(Default)



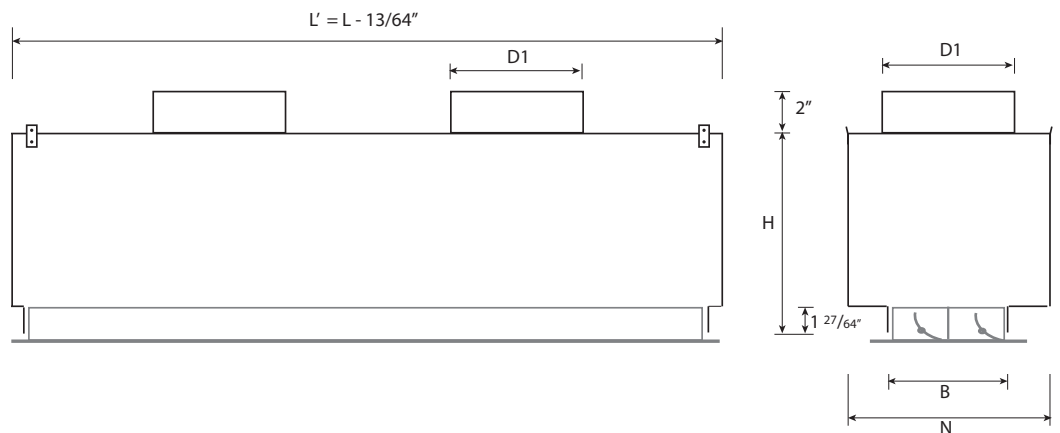
Vertical

PLSD Plenum (Side Connection)



PLSD Plenum								
Nb Slots	H	B	N	D1 $L \leq 19 \frac{11}{16}''$	D1 $L \leq 39 \frac{3}{8}''$	D1 $L \leq 47 \frac{1}{4}''$	D1 $L \leq 59 \frac{1}{16}''$	D1 $L = 78 \frac{47}{64}''$
1	10 5/64"	1 27/32"	2 23/32"	1x 6"D	1x 6"D	1x 6"D	1x 6"D	2x 6"D
2	10 5/64"	3 25/64"	4 1/4"	1x 6"D	1x 6"D	1x 6"D	2x 6"D	2x 6"D
3	11 21/32"	4 15/16"	5 25/32"	1x 8"D	1x 8"D	2x 8"D	2x 8"D	2x 8"D
4	11 21/32"	6 31/64"	7 21/64"	1x 8"D	1x 8"D	2x 8"D	2x 8"D	2x 8"D

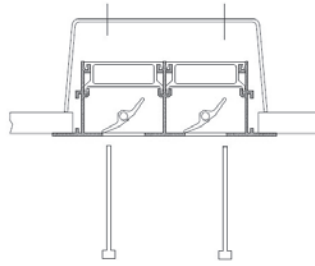
PLSD-T Plenum (Top Connection)



PLSD-T Plenum								
Nb Slots	H	B	N	D1 $L \leq 19 \frac{11}{16}''$	D1 $L \leq 39 \frac{3}{8}''$	D1 $L \leq 47 \frac{1}{4}''$	D1 $L \leq 59 \frac{1}{16}''$	D1 $L = 78 \frac{47}{64}''$
1	8"	1 27/32"	6 7/8"	1x 6"D	1x 6"D	1x 6"D	1x 6"D	2x 6"D
2	8"	3 25/64"	6 7/8"	1x 6"D	1x 6"D	1x 6"D	2x 6"D	2x 6"D
3	10"	4 15/16"	8 7/8"	1x 8"D	1x 8"D	2x 8"D	2x 8"D	2x 8"D
4	10"	6 31/64"	8 7/8"	1x 8"D	1x 8"D	2x 8"D	2x 8"D	2x 8"D

PM Mounting Kit

PM Mounting Kit consists of C shaped clips with long screws. Recommended for installation without plenum.

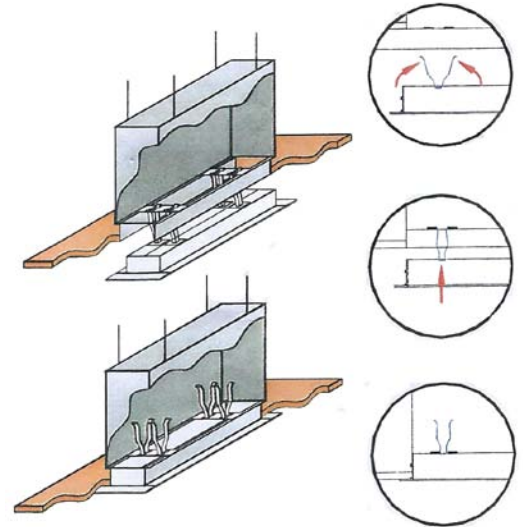


PL Hidden Mounting System

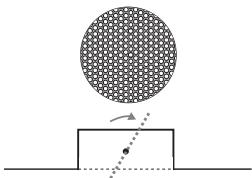
PL Hidden Mounting System consists of spring clips attached to the diffuser and special brackets attached to the plenum.

The clips have a two steps profile. The hooks must first be inserted into the brackets. The hooks secure the product in place, even when submitted to intense vibrations, making it safe for ceiling installation.

The second step only requires to push the diffuser until it lays flush with the gypsum or plenum opening. The spring pressure maintains the product in place.

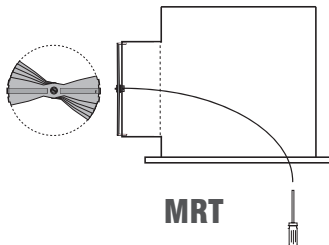


Integrated Air Volume Dampers



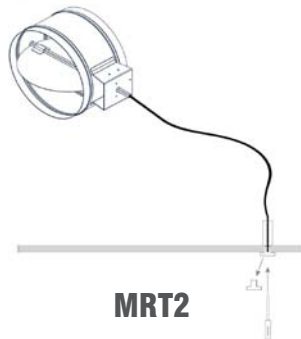
R

Perforated damper + air equalizer



MRT

Manually operated damper, cable inside the plenum, adjustment through face



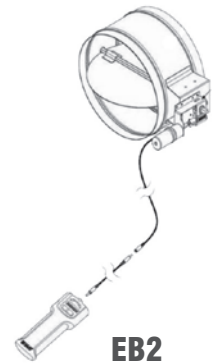
MRT2

Manually operated damper, cable through drywall with termination fixture



EB

Battery operated electro-balance damper with remote control, cable through face



EB2

Battery operated electro-balance damper with remote control, cable through drywall with termination fixture



End Borders	
AR	Two End Borders
ARI	Left End Border Only
ARD	Right End Border Only
INT	No End Border (Central Sections)

Mounting	
PL	Concealed Spring Clips (requires PLSD)
PM	Concealed U Clip
T	Visible Screws

Sectored Vanes Color	
AN	Black
AB	White

Finish	
/M9016	Powder Coated White RAL 9016 (standard)
/AA	Anodized in matt silver with black vanes
/RAL xxxx	Other (specify) :

Plenum	
PLSD	Side connection & hidden spring clips attachment system
PLSD-T	Top connection & hidden spring clips attachment system

Neck-Installed Air Volume Damper		Cable Length
R	Perforated air volume damper/equalizer	
MRT	Manually operated, cable through face	
MRT2	Manually operated, drywall termination fixture	
EB	Electro-balanced, battery powered, cable through face	
EB2	Electro-balanced, battery powered, termination fixture	

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Air Equalizing Grid	
EQ	Perforated plate / air equalizer

Airflow Balancing (Optional)	
W1	1 Way
W2	2 Way
W2A	2 Way Alternate (Default)
V	Vertical

Project:
Engineer:
Architect:
Contractor:

LSD Series High Induction Linear Slot Diffuser

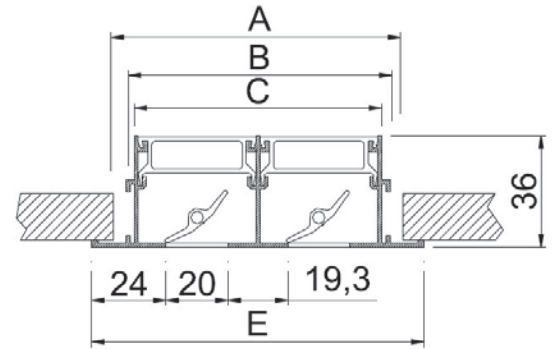
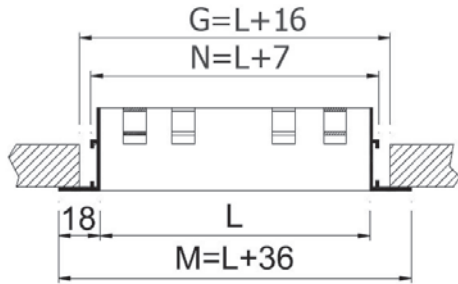
Material | Extruded aluminum and extruded PVC sectored deflection vanes

Air Pattern | Adjustable

Ceiling Types | Open and Closed



LSD
by MADEL®



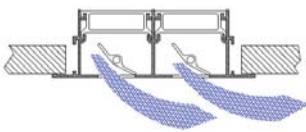
Select Length				
✓	Standard Length	L	G	M
	900	900	916	936
	1176	1176	1192	1212
	1200	1200	1216	1236
	1500	1500	1516	1536
	1800	1800	1816	1836
	2000	2000	2016	2036
	Custom (specify) :		L + 16	L + 36

Select Number of Slots					
✓	Nb Slots	E	A	B	C
	1	68	55	46.7	40.5
	2	107.3	95	86.1	79.9
	3	146.6	134	125.5	119.3
	4	185.9	173	164.9	158.7

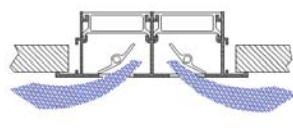
All dimensions in mm

All dimensions in mm

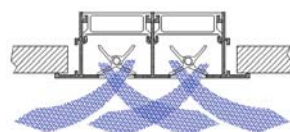
Airflow Balancing



1 Way



2 Way

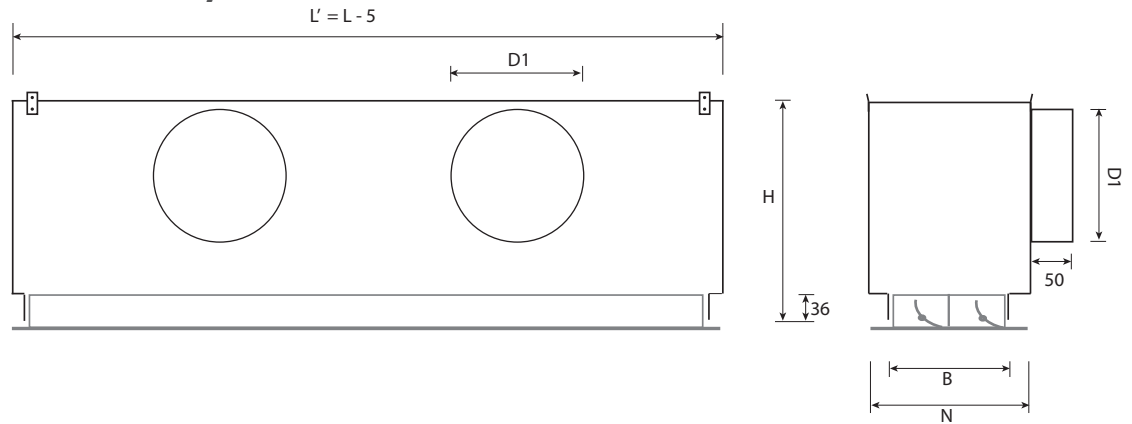


2 Way Alternate
(Default)



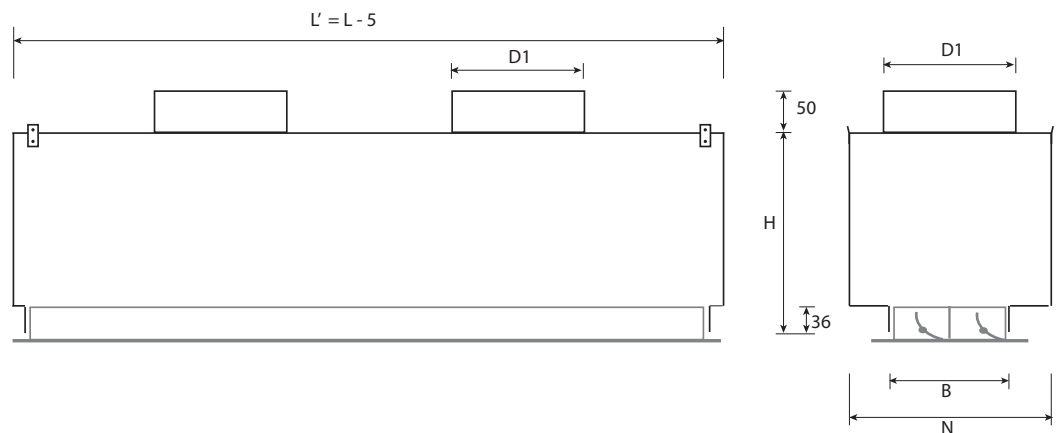
Vertical

PLSD Plenum (Side Connection)



PLSD Plenum									
Nb Slots	H	B	N	D1 (L ≤ 500)	D1 (L ≤ 1000)	D1 (L ≤ 1200)	D1 (L ≤ 1500)	D1 (L ≤ 2000)	
1	256	46.7	69	1x 148	1x 148	1x 148	1x 148	2x 148	
2	256	86.1	108	1x 148	1x 148	1x 148	2x 148	2x 148	
3	296	125.5	147	1x 198	1x 198	2x 198	2x 198	2x 198	
4	296	164.9	186	1x 198	1x 198	2x 198	2x 198	2x 198	

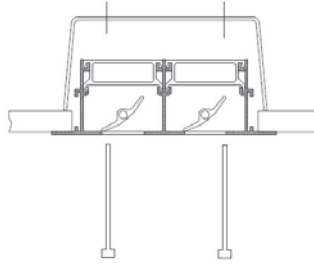
PLSD-T Plenum (Top Connection)



PLSD-T Plenum									
Nb Slots	H	B	N	D1 (L ≤ 500)	D1 (L ≤ 1000)	D1 (L ≤ 1200)	D1 (L ≤ 1500)	D1 (L ≤ 2000)	
1	203	46.7	175	1x 148	1x 148	1x 148	1x 148	2x 148	
2	203	86.1	175	1x 148	1x 148	1x 148	2x 148	2x 148	
3	254	125.5	225	1x 198	1x 198	2x 198	2x 198	2x 198	
4	254	164.9	225	1x 198	1x 198	2x 198	2x 198	2x 198	

PM Mounting Kit

PM Mounting Kit consists of C shaped clips with long screws. Recommended for installation without plenum.

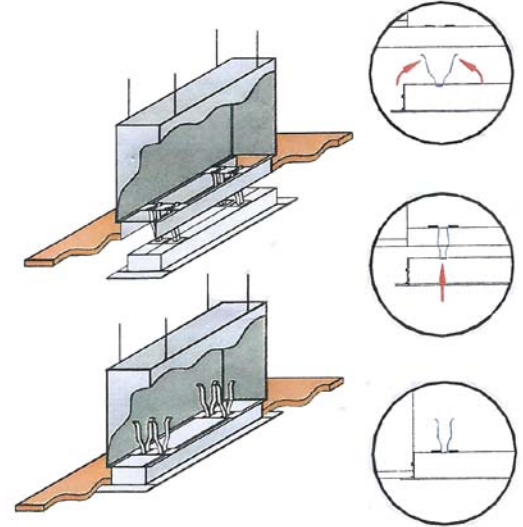


PL Hidden Mounting System

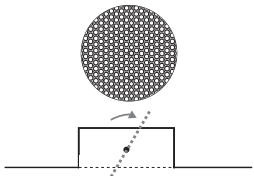
PL Hidden Mounting System consists of spring clips attached to the diffuser and special brackets attached to the plenum.

The clips have a two steps profile. The hooks must first be inserted into the brackets. The hooks secure the product in place, even when submitted to intense vibrations, making it safe for ceiling installation.

The second step only requires to push the diffuser until it lays flush with the gypsum or plenum opening. The spring pressure maintains the product in place.

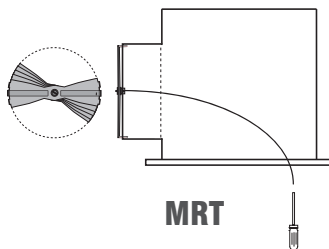


Integrated Air Volume Dampers



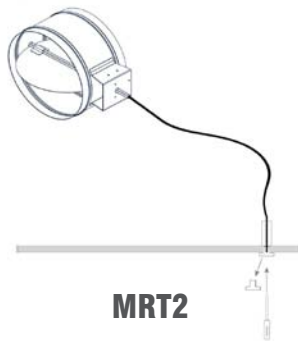
R

Perforated damper + air equalizer



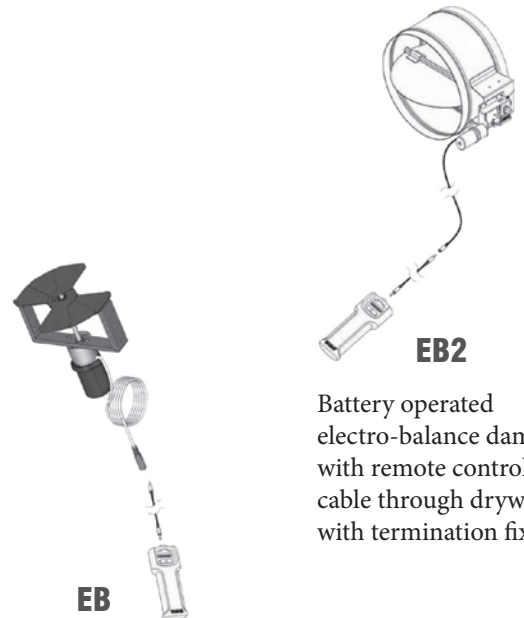
MRT

Manually operated damper, cable inside the plenum, adjustment through face



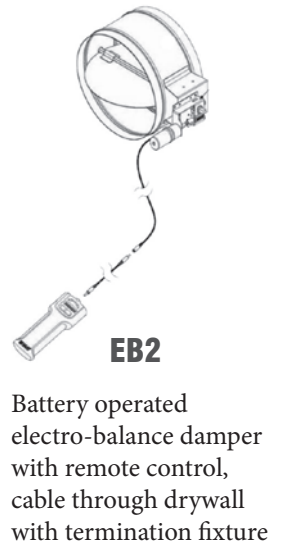
MRT2

Manually operated damper, cable through drywall with termination fixture



EB

Battery operated electro-balance damper with remote control, cable through face



EB2

Battery operated electro-balance damper with remote control, cable through drywall with termination fixture



End Borders	
AR	Two End Borders
ARI	Left End Border Only
ARD	Right End Border Only
INT	No End Border (Central Sections)

Mounting	
PL	Concealed Spring Clips (requires PLSD)
PM	Concealed U Clip
T	Visible Screws

Sectored Vanes Color	
AN	Black
AB	White

Finish	
/M9016	Powder Coated White RAL 9016 (standard)
/AA	Anodized in matt silver with black vanes
/RAL xxxx	Other (specify) :

Plenum	
PLSD	Side connection & hidden spring clips attachment system
PLSD-T	Top connection & hidden spring clips attachment system

Neck-Installed Air Volume Damper		Cable Length
R	Perforated air volume damper/equalizer	
MRT	Manually operated, cable through face	
MRT2	Manually operated, drywall termination fixture	
EB	Electro-balanced, battery powered, cable through face	
EB2	Electro-balanced, battery powered, termination fixture	

Insulation	
AL	1/2" (13mm) Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" (50mm) Exterior R6 Thermal Insulation

Air Equalizing Grid	
EQ	Perforated plate / air equalizer

Airflow Balancing (Optional)	
W1	1 Way
W2	2 Way
W2A	2 Way Alternate (Default)
V	Vertical

Project:
Engineer:
Architect:
Contractor:

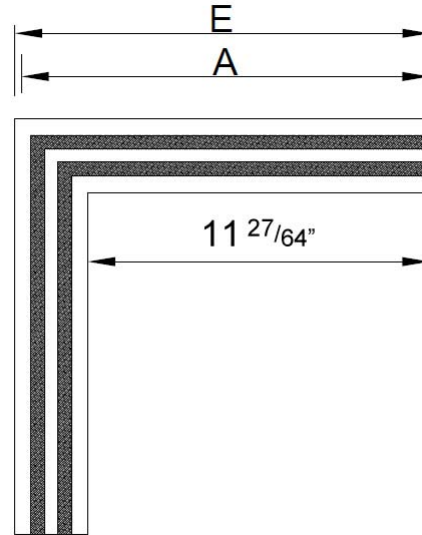
LSD-A90 Series Inactive 90° Angle for Linear Sectored Slot Diffusers

Material | Extruded aluminum and extruded PVC sectored deflection vanes

Air Pattern | Adjustable

Ceiling Types | Open and Closed

Nb of Slots	E	A
1	14 31/64"	14 3/32"
2	16 1/32"	15 5/8"
3	17 19/32"	17 13/64"
4	19 9/64"	18 47/64"



Select Model	
<input checked="" type="checkbox"/>	LSD-A90

Sectored Vanes Color	
<input type="checkbox"/>	Black (/AN)
<input type="checkbox"/>	White (/AB)

Select Finish	
<input type="checkbox"/>	Powder Coated White RAL 9016
<input type="checkbox"/>	Anodized in matt silver with black vanes
<input type="checkbox"/>	Other (specify) :

<p>Project:</p> <p>Engineer:</p> <p>Architect:</p> <p>Contractor:</p>

LSD-A90 Series

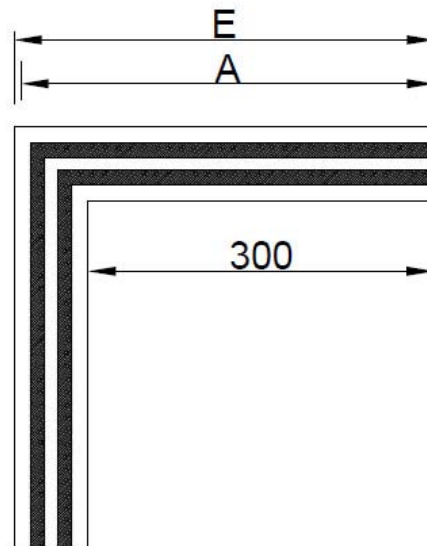
Inactive 90° Angle for Linear Sectored Slot Diffusers

Material | Extruded aluminum and extruded PVC sectored deflection vanes

Air Pattern | Adjustable

Ceiling Types | Open and Closed

Nb of Slots	E	A
1	368	358
2	407	397
3	447	437
4	486	476



Select Model	
<input checked="" type="checkbox"/>	LSD-A90

Sectored Vanes Color	
<input type="checkbox"/>	Black (/AN)
<input type="checkbox"/>	White (/AB)

Select Finish	
<input type="checkbox"/>	Powder Coated White RAL 9016
<input type="checkbox"/>	Anodized in matt silver with black vanes
<input type="checkbox"/>	Other (specify) :

Project:
Engineer:
Architect:
Contractor:



NEX-C Series Concave Elements Architectural Round Swirl Diffuser

Material | Powder coated stamped heavy gauge steel face with ABS elements and galvanized steel plenum.

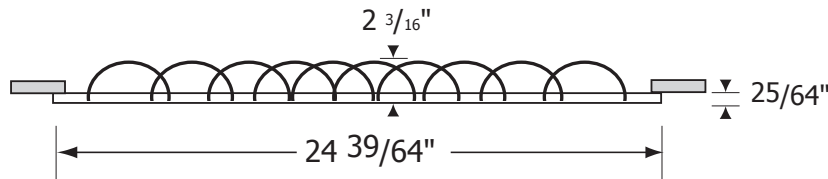
Air Pattern | Fix high induction swirl pattern.

Ceiling Types | Open and Closed.



NEX-C
by MADEL®

PATENTED

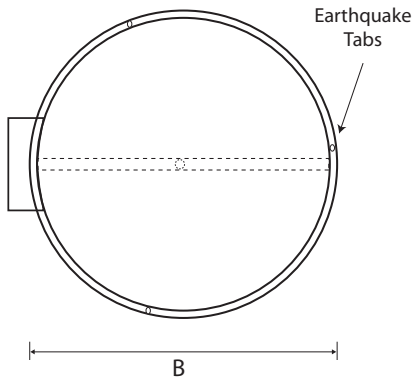
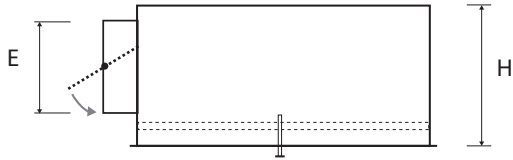


Select Model			
✓	Imperial	✓	Metric
	NEX-C 25		NEX-C 625

Select Elements Color	
<input type="checkbox"/>	White Elements (Standard)
<input type="checkbox"/>	Lavender Blue (/EL)
<input type="checkbox"/>	Pistachio Green (/EV)
<input type="checkbox"/>	Night (/EN)
<input type="checkbox"/>	Red (/ER)

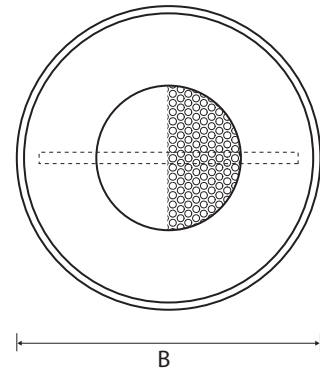
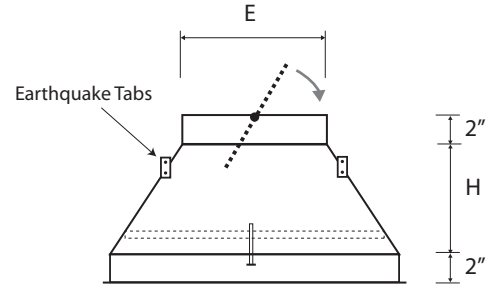
Select Finish	
<input type="checkbox"/>	Powder Coated White RAL9016
<input type="checkbox"/>	Other (specify) :

Plenum



PERFAIR-CS

Cylindrical with side duct connection, ideal for closed ceilings.



PERFAIR-CT

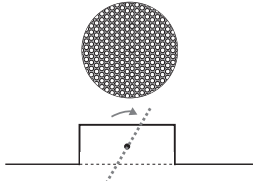
Conical with top duct connection, ideal for open ceilings with visible duct.

Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CS 1205	5	11 3/8	4 7/8	9
	PERFAIR-CS 1206	6	11 3/8	5 7/8	9
	PERFAIR-CS 1208	8	11 3/8	7 7/8	9
	PERFAIR-CS 1606	6	15 1/4	5 7/8	10
	PERFAIR-CS 1608	8	15 1/4	7 7/8	10
	PERFAIR-CS 2006	6	19	5 7/8	12
	PERFAIR-CS 2008	8	19	7 7/8	12
	PERFAIR-CS 2010	10	19	9 7/8	12
	PERFAIR-CS 2506	6	24	5 7/8	13
	PERFAIR-CS 2508	8	24	7 7/8	13
	PERFAIR-CS 2510	10	24	9 7/8	13
	PERFAIR-CS 2512	12	24	11 7/8	13
	PERFAIR-CS 3312	12	33	11 7/8	16

Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CT 1205	5	11 3/8	4 7/8	6
	PERFAIR-CT 1206	6	11 3/8	5 7/8	6
	PERFAIR-CT 1208	8	11 3/8	7 7/8	6
	PERFAIR-CT 1606	6	15 1/4	5 7/8	6
	PERFAIR-CT 1608	8	15 1/4	7 7/8	6
	PERFAIR-CT 2006	6	19	5 7/8	8
	PERFAIR-CT 2008	8	19	7 7/8	8
	PERFAIR-CT 2010	10	19	9 7/8	8
	PERFAIR-CT 2506	6	24	5 7/8	8
	PERFAIR-CT 2508	8	24	7 7/8	8
	PERFAIR-CT 2510	10	24	9 7/8	8
	PERFAIR-CT 2512	12	24	11 7/8	8
	PERFAIR-CT 3312	12	33	11 7/8	12

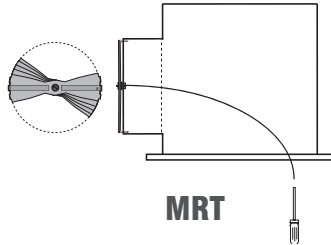
All dimensions in inches

Air Volume Dampers



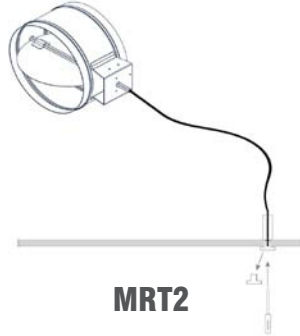
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation
Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture
Cable Length (MRT2 or EB2)	

Project:
Engineer:
Architect:
Contractor:



NEX-ALU-C Series Concave Elements Architectural Aluminum Round Swirl Diffuser

Material | Powder coated stamped heavy gauge aluminum face and ABS diffusion elements and galvanized steel plenum.

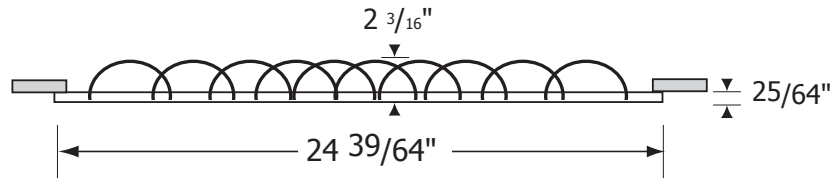
Air Pattern | Fix high induction swirl pattern.

Ceiling Types | Open and Closed.



NEX-ALU-C
by MADEL®

PATENTED

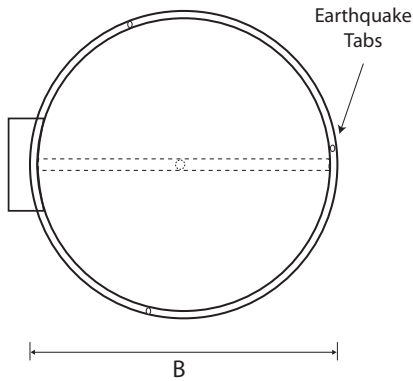
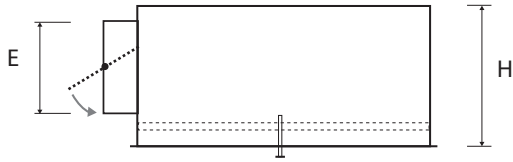


Select Model			
✓	Imperial	✓	Metric
	NEX-ALU-C 25		NEX-ALU-C 625

Select Elements Color	
	White Elements (Standard)
	Lavender Blue (/EL)
	Pistachio Green (/EV)
	Night (/EN)
	Red (/ER)

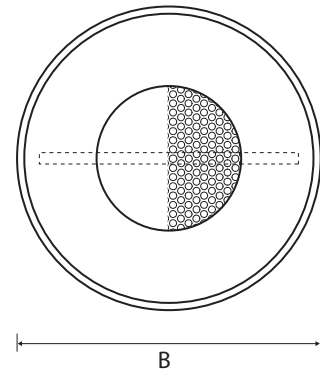
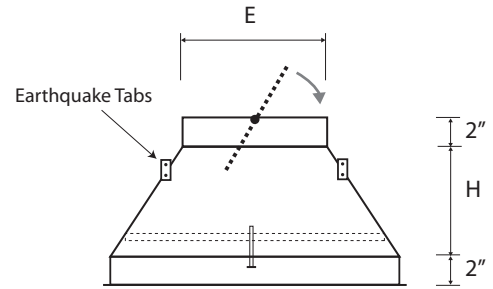
Select Finish	
	Powder Coated White RAL9016
	Other (specify) :

Plenum



PERFAIR-CS

Cylindrical with side duct connection, ideal for closed ceilings.



PERFAIR-CT

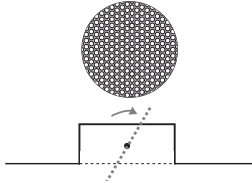
Conical with top duct connection, ideal for open ceilings with visible duct.

Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CS 1205	5	11 3/8	4 7/8	9
	PERFAIR-CS 1206	6	11 3/8	5 7/8	9
	PERFAIR-CS 1208	8	11 3/8	7 7/8	9
	PERFAIR-CS 1606	6	15 1/4	5 7/8	10
	PERFAIR-CS 1608	8	15 1/4	7 7/8	10
	PERFAIR-CS 2006	6	19	5 7/8	12
	PERFAIR-CS 2008	8	19	7 7/8	12
	PERFAIR-CS 2010	10	19	9 7/8	12
	PERFAIR-CS 2506	6	24	5 7/8	13
	PERFAIR-CS 2508	8	24	7 7/8	13
	PERFAIR-CS 2510	10	24	9 7/8	13
	PERFAIR-CS 2512	12	24	11 7/8	13
	PERFAIR-CS 3312	12	33	11 7/8	16

Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CT 1205	5	11 3/8	4 7/8	6
	PERFAIR-CT 1206	6	11 3/8	5 7/8	6
	PERFAIR-CT 1208	8	11 3/8	7 7/8	6
	PERFAIR-CT 1606	6	15 1/4	5 7/8	6
	PERFAIR-CT 1608	8	15 1/4	7 7/8	6
	PERFAIR-CT 2006	6	19	5 7/8	8
	PERFAIR-CT 2008	8	19	7 7/8	8
	PERFAIR-CT 2010	10	19	9 7/8	8
	PERFAIR-CT 2506	6	24	5 7/8	8
	PERFAIR-CT 2508	8	24	7 7/8	8
	PERFAIR-CT 2510	10	24	9 7/8	8
	PERFAIR-CT 2512	12	24	11 7/8	8
	PERFAIR-CT 3312	12	33	11 7/8	12

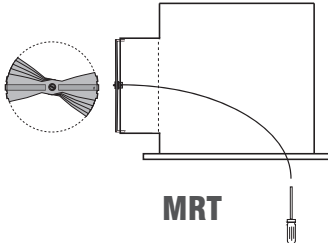
All dimensions in inches

Air Volume Dampers



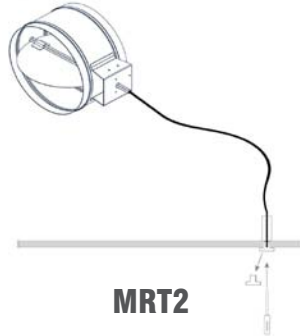
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)	

<p>Project:</p> <p>Engineer:</p> <p>Architect:</p> <p>Contractor:</p>



NEX-S Series Concave Elements Architectural Square Swirl Diffuser

Material | Powder coated stamped heavy gauge steel face with ABS diffusion elements and galvanized steel plenum.

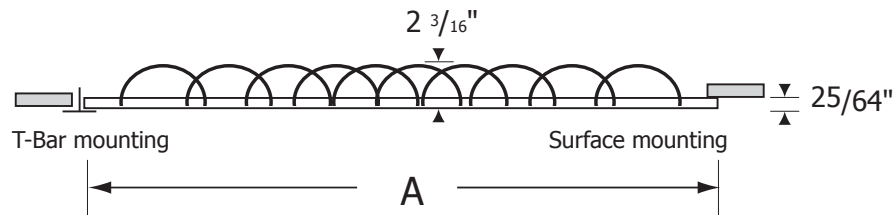
Air Pattern | Fix high induction swirl pattern.

Ceiling Types | False, Open and Closed.



NEX-S
by MADEL®

PATENTED

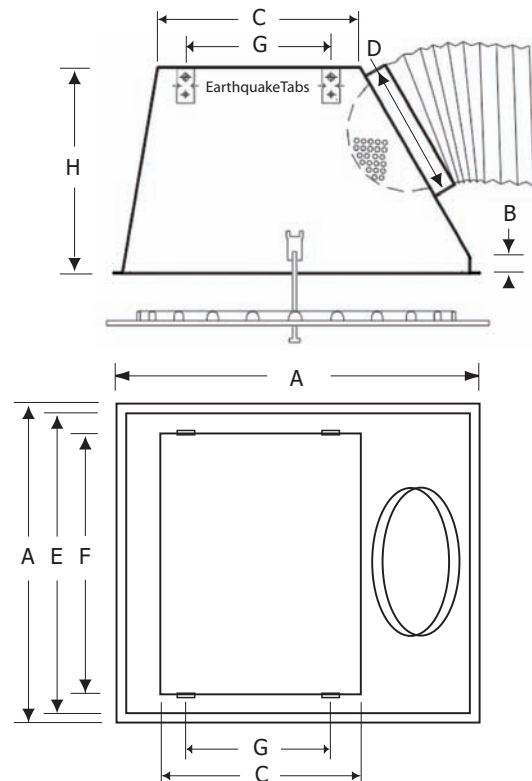


Select Model					
✓	Imperial	A	✓	Metric	A
	NEX-S 12	11 3/4"		NEX-S 300	295 mm
	NEX-S 24	23 3/4"		NEX-S 610	605 mm

Select Elements Color	
	White Elements (Standard)
	Lavender Blue (/EL)
	Pistachio Green (/EV)
	Night (/EN)
	Red (/ER)

Select Finish	
	Powder Coated White RAL9016
	Other RAL:

Plenum



PERFAIR-SS

Trapezoidal with side duct connection, recommended for closed ceilings and false ceilings.

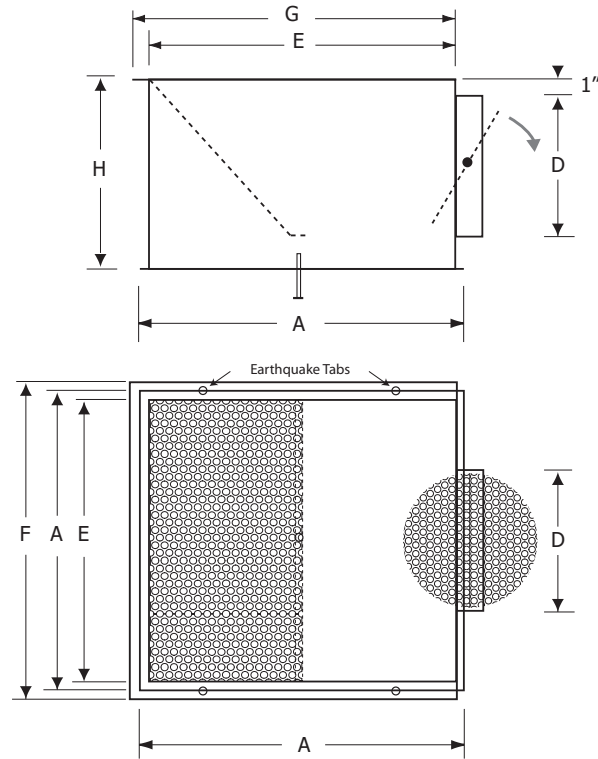
Select Model										
✓	Model	Duct Size	A	B	C	D	E	F	G	H
	PERFAIR-SS 1205	5	11 1/2	1	5 3/4	4 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1206	6	11 1/2	1	5 3/4	5 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1208	8	11 1/2	1	5 3/4	7 7/8	10 3/4	10 1/2	6 5/8	12
	PERFAIR-SS 1608	8	15 3/8	1	7 1/2	7 7/8	14 5/8	13 5/8	8 5/8	12
	PERFAIR-SS 2010	10	19 1/4	1	8 1/2	9 7/8	18 5/8	17 5/8	8 5/8	12
	PERFAIR-SS 2405	5	23 1/2	1	10 1/2	4 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2406	6	23 1/2	1	10 1/2	5 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2408	8	23 1/2	1	10 1/2	7 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2410	10	23 1/2	1	10 1/2	9 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2412	12	23 1/2	1	10 1/2	11 7/8	22 5/8	21 5/8	8 5/8	13 25/32

All dimensions in inches

Plenum (continued)

PERFAIR-SSS

Rectangular with side connection, recommended for open ceilings with rigid duct entering from the side.



Select Model								
✓	Model	Duct Size	A	D	E	F	G	H
	PERFAIR-SSS 1205	5	11 1/2	4 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1206	6	11 1/2	5 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1208	8	11 1/2	7 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1608	8	15 3/8	7 7/8	14 5/8	16 5/8	15 5/8	12
	PERFAIR-SSS 2010	10	19 1/4	9 7/8	18 5/8	21 5/8	19 5/8	14
	PERFAIR-SSS 2405	5	23 1/2	4 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2406	6	23 1/2	5 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2408	8	23 1/2	7 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2410	10	23 1/2	9 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2412	12	23 1/2	11 7/8	22 5/8	24 5/8	23 5/8	14

All dimensions in inches

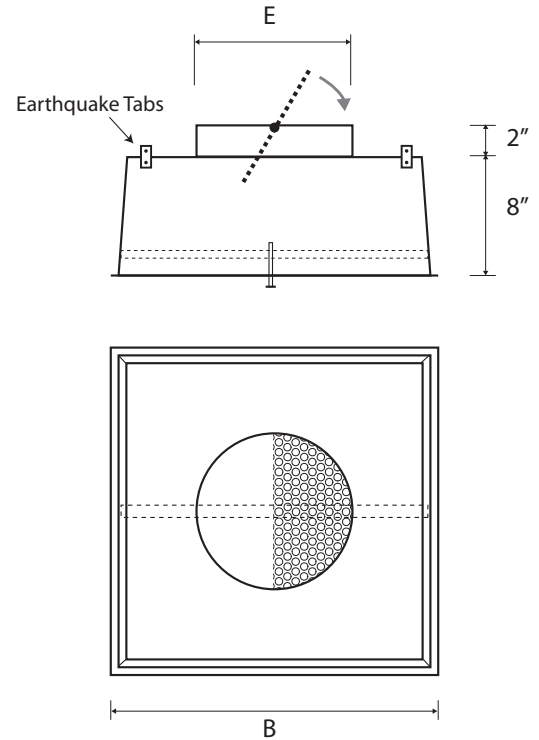
Plenum (continued)

PERFAIR-ST

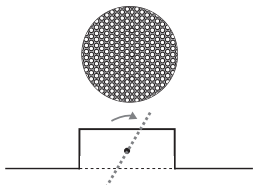
Top duct connection, recommended for open ceilings with visible duct.

Select Model				
✓	Model	Duct Size	B	E
	PERFAIR-ST 1206	6	11 1/2	5 7/8
	PERFAIR-ST 1208	8	11 1/2	7 7/8
	PERFAIR-ST 2406	6	23 1/2	5 7/8
	PERFAIR-ST 2408	8	23 1/2	7 7/8
	PERFAIR-ST 2410	10	23 1/2	9 7/8
	PERFAIR-ST 2412	12	23 1/2	11 7/8

All dimensions in inches

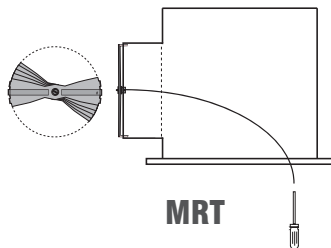


Air Volume Dampers



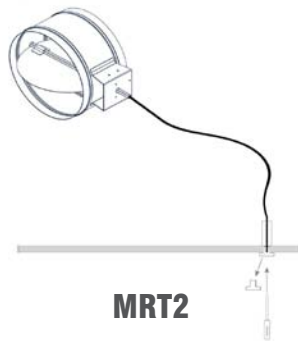
R

Perforated damper + air equalizer



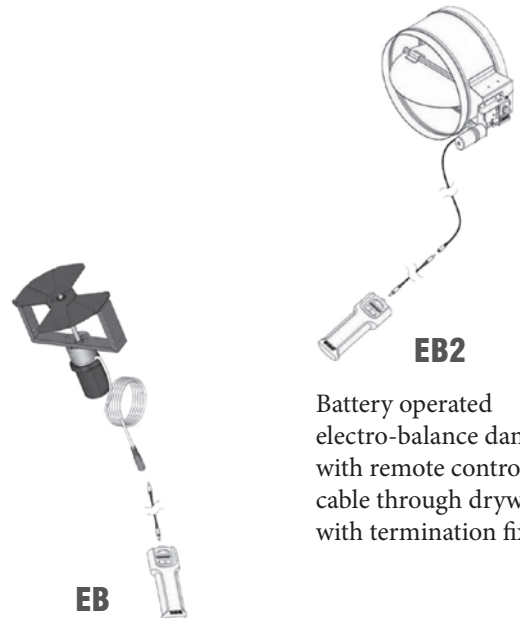
MRT

Manually operated damper, cable inside the plenum, adjustment through face



MRT2

Manually operated damper, cable through drywall with termination fixture



EB2

Battery operated electro-balance damper with remote control, cable through drywall with termination fixture

EB

Battery operated electro-balance damper with remote control, cable through face



Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)	

Project:	
Engineer:	
Architect:	
Contractor:	

NEX-ALU-S Series Concave Elements Architectural Aluminum Square Swirl Diffuser



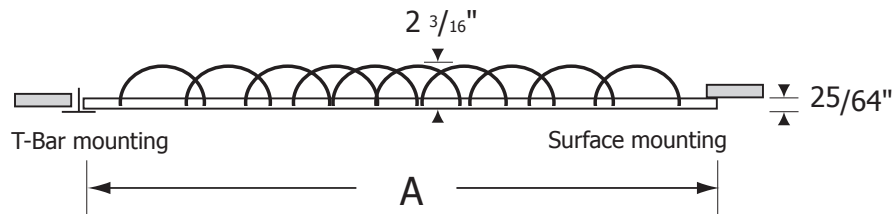
NEX-ALU-S
by MADEL®

PATENTED

Material | Powder coated stamped heavy gauge aluminum face with ABS elements and galvanized steel plenum.

Air Pattern | Fix high induction swirl pattern.

Ceiling Types | False, Open and Closed.

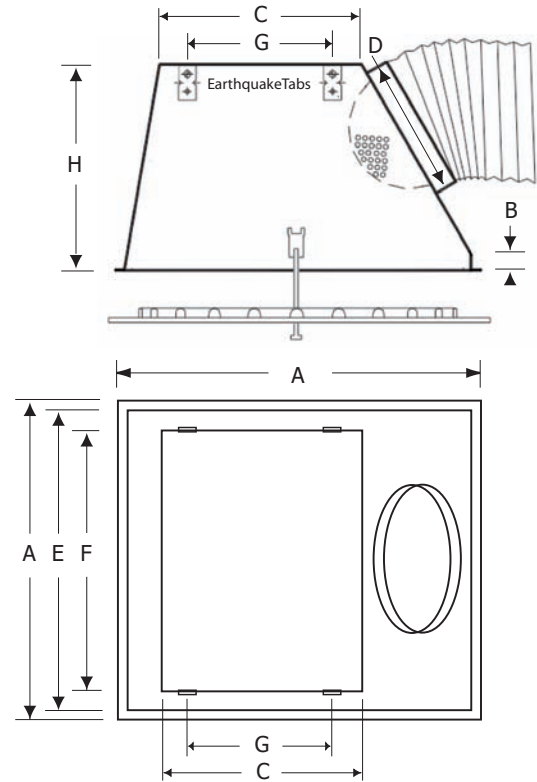


Select Model					
✓	Imperial	A	✓	Metric	A
	NEX-ALU-S 12	11 3/4"		NEX-ALU-S 300	295 mm
	NEX-ALU-S 24	23 3/4"		NEX-ALU-S 610	605 mm

Select Elements Color	
	White Elements (Standard)
	Lavender Blue (/EL)
	Pistachio Green (/EV)
	Night (/EN)
	Red (/ER)

Select Finish	
	Powder Coated White RAL9016
	Other RAL :

Plenum



PERFAIR-SS

Trapezoidal with side duct connection, recommended for closed ceilings and false ceilings.

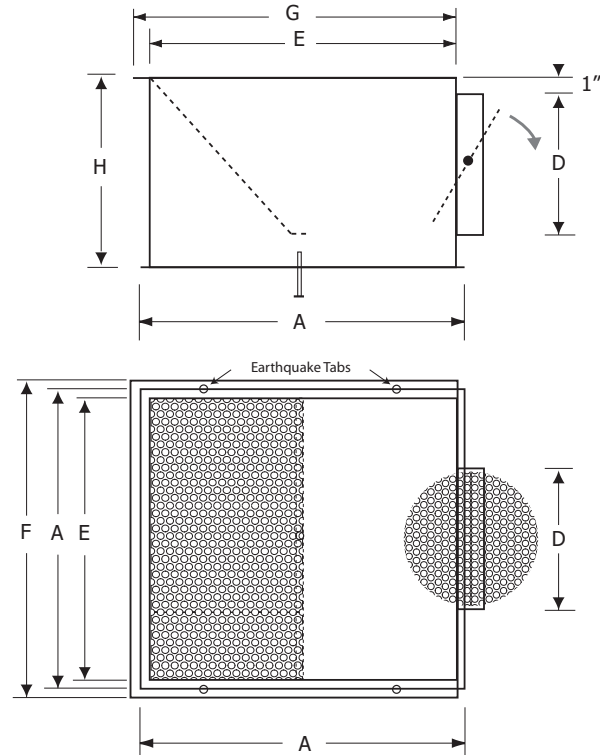
Select Model										
✓	Model	Duct Size	A	B	C	D	E	F	G	H
	PERFAIR-SS 1205	5	11 1/2	1	5 3/4	4 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1206	6	11 1/2	1	5 3/4	5 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1208	8	11 1/2	1	5 3/4	7 7/8	10 3/4	10 1/2	6 5/8	12
	PERFAIR-SS 1608	8	15 3/8	1	7 1/2	7 7/8	14 5/8	13 5/8	8 5/8	12
	PERFAIR-SS 2010	10	19 1/4	1	8 1/2	9 7/8	18 5/8	17 5/8	8 5/8	12
	PERFAIR-SS 2405	5	23 1/2	1	10 1/2	4 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2406	6	23 1/2	1	10 1/2	5 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2408	8	23 1/2	1	10 1/2	7 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2410	10	23 1/2	1	10 1/2	9 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2412	12	23 1/2	1	10 1/2	11 7/8	22 5/8	21 5/8	8 5/8	13 25/32

All dimensions in inches

Plenum (continued)

PERFAIR-SSS

Rectangular with side connection, recommended for open ceilings with rigid duct entering from the side.



Select Model								
✓	Model	Duct Size	A	D	E	F	G	H
	PERFAIR-SSS 1205	5	11 1/2	4 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1206	6	11 1/2	5 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1208	8	11 1/2	7 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1608	8	15 3/8	7 7/8	14 5/8	16 5/8	15 5/8	12
	PERFAIR-SSS 2010	10	19 1/4	9 7/8	18 5/8	21 5/8	19 5/8	14
	PERFAIR-SSS 2405	5	23 1/2	4 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2406	6	23 1/2	5 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2408	8	23 1/2	7 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2410	10	23 1/2	9 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2412	12	23 1/2	11 7/8	22 5/8	24 5/8	23 5/8	14

All dimensions in inches

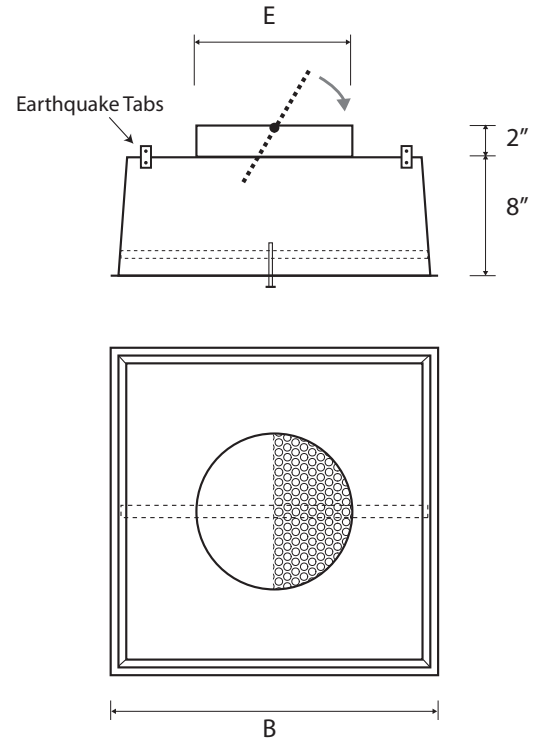
Plenum (continued)

PERFAIR-ST

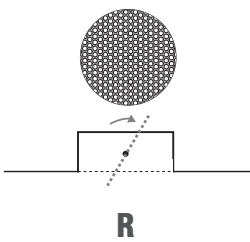
Top duct connection, recommended for open ceilings with visible duct.

Select Model				
✓	Model	Duct Size	B	E
	PERFAIR-ST 1206	6	11 1/2	5 7/8
	PERFAIR-ST 1208	8	11 1/2	7 7/8
	PERFAIR-ST 2406	6	23 1/2	5 7/8
	PERFAIR-ST 2408	8	23 1/2	7 7/8
	PERFAIR-ST 2410	10	23 1/2	9 7/8
	PERFAIR-ST 2412	12	23 1/2	11 7/8

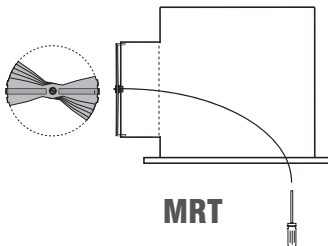
All dimensions in inches



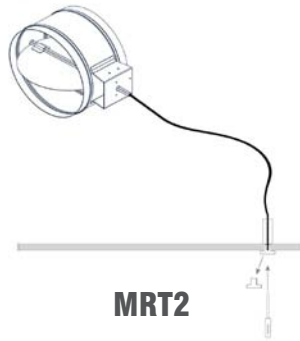
Air Volume Damper



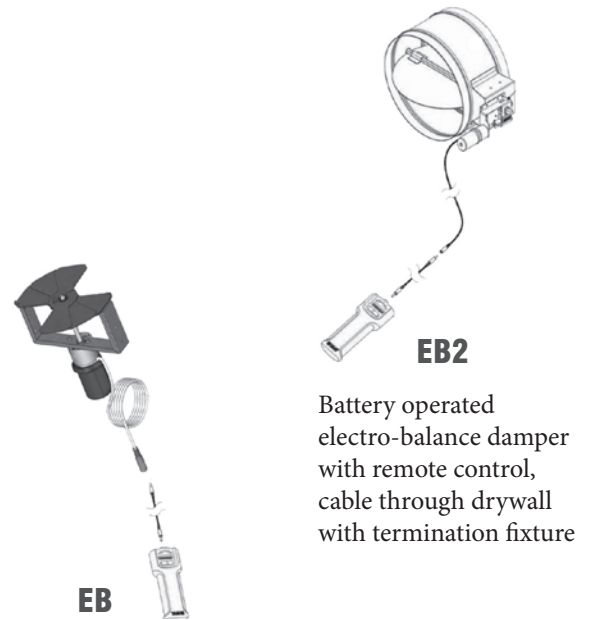
Perforated damper + air equalizer



Manually operated damper, cable inside the plenum, adjustment through face



Manually operated damper, cable through drywall with termination fixture



Battery operated electro-balance damper with remote control, cable through face



Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)	

Project:
Engineer:
Architect:
Contractor:



OTO-C Series Curved Slots Architectural Round Swirl Diffuser

Material | Powder coated stamped heavy gauge steel,
galvanized steel plenum.

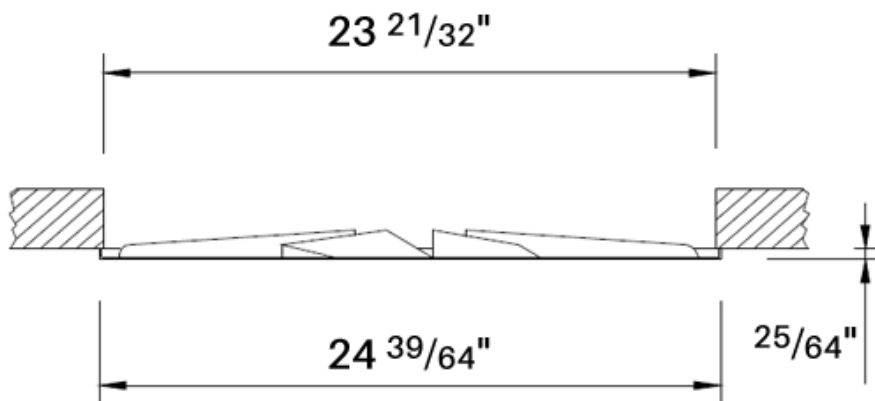
Air Pattern | Fixed horizontal swirl.

Ceiling Types | Open and Closed.



OTO-C
by MADEL®

PATENTED

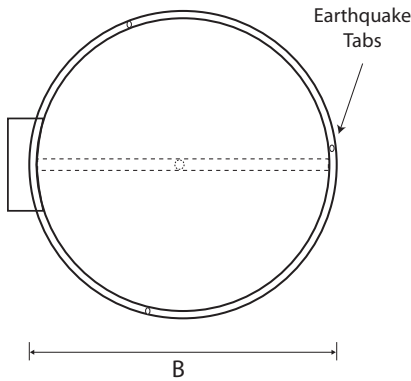
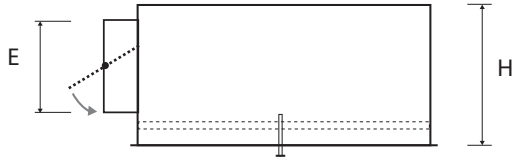


Select Model			
<input checked="" type="checkbox"/>	Imperial	<input checked="" type="checkbox"/>	Metric
	OTO-C 25		OTO-C 625

Select Finish	
	Powder Coated White RAL 9016
	Other RAL:

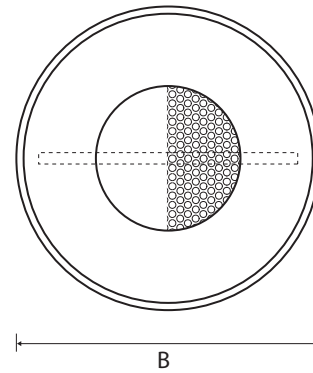
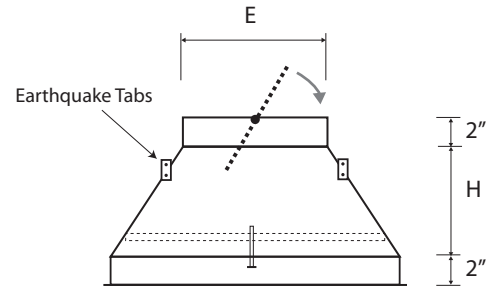
Matching PERFAIR plenum ordered separately.

Plenum



PERFAIR-CS

Cylindrical with side duct connection, ideal for closed ceilings.



PERFAIR-CT

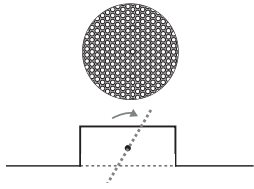
Conical with top duct connection, ideal for open ceilings with visible duct.

Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CS 1205	5	11 3/8	4 7/8	9
	PERFAIR-CS 1206	6	11 3/8	5 7/8	9
	PERFAIR-CS 1208	8	11 3/8	7 7/8	9
	PERFAIR-CS 1606	6	15 1/4	5 7/8	10
	PERFAIR-CS 1608	8	15 1/4	7 7/8	10
	PERFAIR-CS 2006	6	19	5 7/8	12
	PERFAIR-CS 2008	8	19	7 7/8	12
	PERFAIR-CS 2010	10	19	9 7/8	12
	PERFAIR-CS 2506	6	24	5 7/8	13
	PERFAIR-CS 2508	8	24	7 7/8	13
	PERFAIR-CS 2510	10	24	9 7/8	13
	PERFAIR-CS 2512	12	24	11 7/8	13
	PERFAIR-CS 3312	12	33	11 7/8	16

Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CT 1205	5	11 3/8	4 7/8	6
	PERFAIR-CT 1206	6	11 3/8	5 7/8	6
	PERFAIR-CT 1208	8	11 3/8	7 7/8	6
	PERFAIR-CT 1606	6	15 1/4	5 7/8	6
	PERFAIR-CT 1608	8	15 1/4	7 7/8	6
	PERFAIR-CT 2006	6	19	5 7/8	8
	PERFAIR-CT 2008	8	19	7 7/8	8
	PERFAIR-CT 2010	10	19	9 7/8	8
	PERFAIR-CT 2506	6	24	5 7/8	8
	PERFAIR-CT 2508	8	24	7 7/8	8
	PERFAIR-CT 2510	10	24	9 7/8	8
	PERFAIR-CT 2512	12	24	11 7/8	8
	PERFAIR-CT 3312	12	33	11 7/8	12

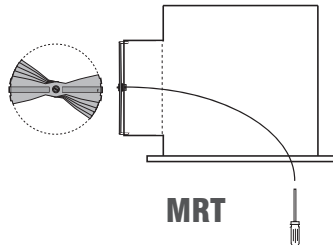
All dimensions in inches

Air Volume Dampers



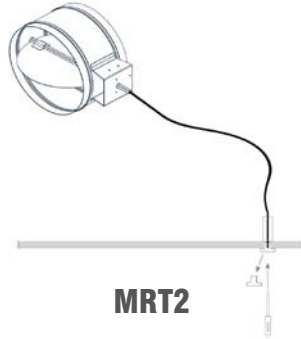
R

Perforated damper + air equalizer



MRT

Manually operated damper, cable inside the plenum, adjustment through face



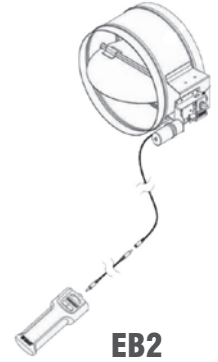
MRT2

Manually operated damper, cable through drywall with termination fixture



EB

Battery operated electro-balance damper with remote control, cable through face



EB2

Battery operated electro-balance damper with remote control, cable through drywall with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation
Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture
Cable Length (MRT2 or EB2)	

Project:
Engineer:
Architect:
Contractor:

OTO-S Series Curved Slots Architectural Square Swirl Diffuser

Materials | Powder coated stamped heavy gauge steel,
galvanized steel plenum.

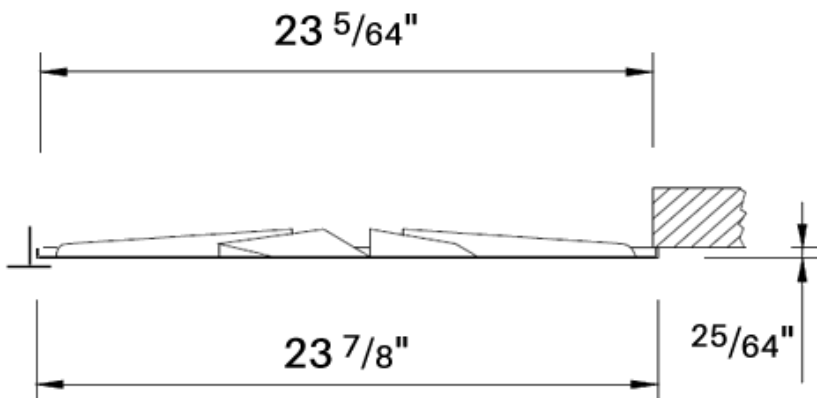
Air Pattern | Fixed horizontal swirl.

Ceiling Types | False, Open and Closed.



OTO-S
by MADEL®

PATENTED

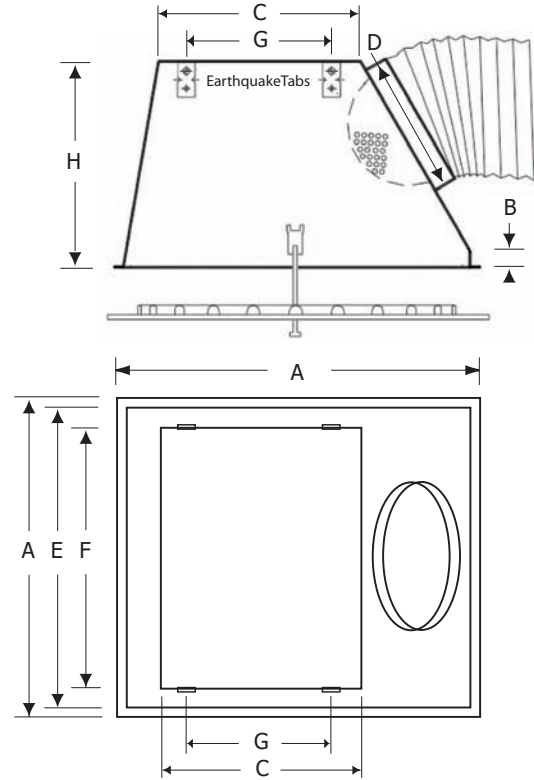


Select Model			
✓	Imperial	✓	Metric
	OTO-S 24		OTO-S 610

Select Finish	
	Powder Coated White RAL 9016
	Other RAL:

Matching PERFAIR plenum ordered separately.

Plenum



PERFAIR-SS

Trapezoidal with side duct connection, recommended for closed ceilings and false ceilings.

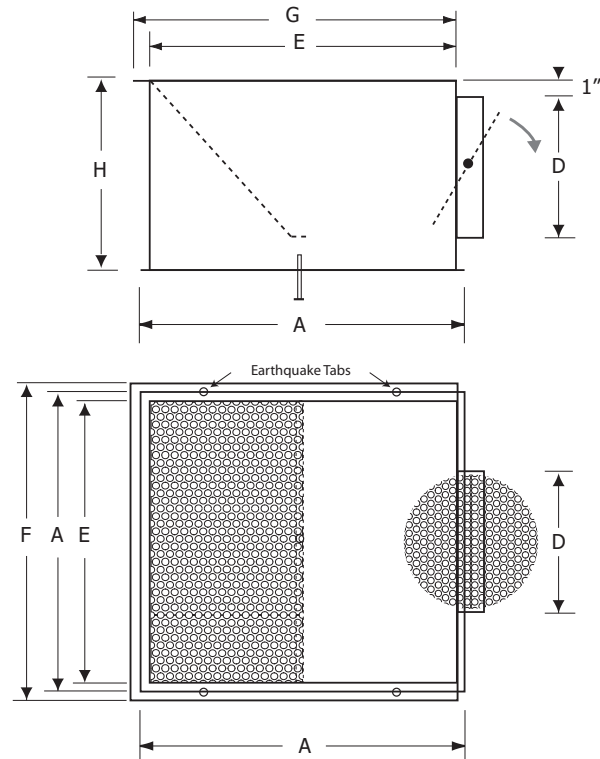
Select Model										
✓	Model	Duct Size	A	B	C	D	E	F	G	H
	PERFAIR-SS 1205	5	11 1/2	1	5 3/4	4 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1206	6	11 1/2	1	5 3/4	5 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1208	8	11 1/2	1	5 3/4	7 7/8	10 3/4	10 1/2	6 5/8	12
	PERFAIR-SS 1608	8	15 3/8	1	7 1/2	7 7/8	14 5/8	13 5/8	8 5/8	12
	PERFAIR-SS 2010	10	19 1/4	1	8 1/2	9 7/8	18 5/8	17 5/8	8 5/8	12
	PERFAIR-SS 2405	5	23 1/2	1	10 1/2	4 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2406	6	23 1/2	1	10 1/2	5 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2408	8	23 1/2	1	10 1/2	7 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2410	10	23 1/2	1	10 1/2	9 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2412	12	23 1/2	1	10 1/2	11 7/8	22 5/8	21 5/8	8 5/8	13 25/32

All dimensions in inches

Plenum (continued)

PERFAIR-SSS

Rectangular with side connection, recommended for open ceilings with rigid duct entering from the side.



Select Model								
✓	Model	Duct Size	A	D	E	F	G	H
	PERFAIR-SSS 1205	5	11 1/2	4 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1206	6	11 1/2	5 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1208	8	11 1/2	7 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1608	8	15 3/8	7 7/8	14 5/8	16 5/8	15 5/8	12
	PERFAIR-SSS 2010	10	19 1/4	9 7/8	18 5/8	21 5/8	19 5/8	14
	PERFAIR-SSS 2405	5	23 1/2	4 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2406	6	23 1/2	5 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2408	8	23 1/2	7 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2410	10	23 1/2	9 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2412	12	23 1/2	11 7/8	22 5/8	24 5/8	23 5/8	14

All dimensions in inches

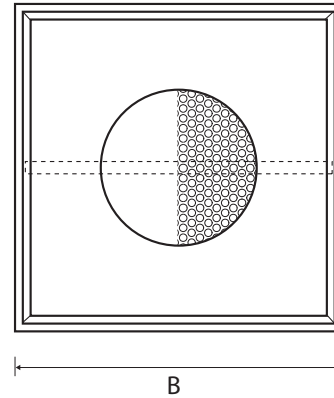
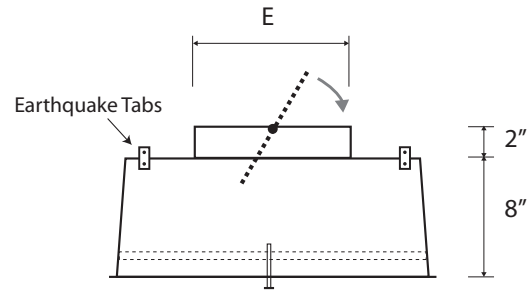
Plenum (continued)

PERFAIR-ST

Top duct connection, recommended for open ceilings with visible duct.

Select Model				
✓	Model	Duct Size	B	E
	PERFAIR-ST 1206	6	11 1/2	5 7/8
	PERFAIR-ST 1208	8	11 1/2	7 7/8
	PERFAIR-ST 2406	6	23 1/2	5 7/8
	PERFAIR-ST 2408	8	23 1/2	7 7/8
	PERFAIR-ST 2410	10	23 1/2	9 7/8
	PERFAIR-ST 2412	12	23 1/2	11 7/8

All dimensions in inches

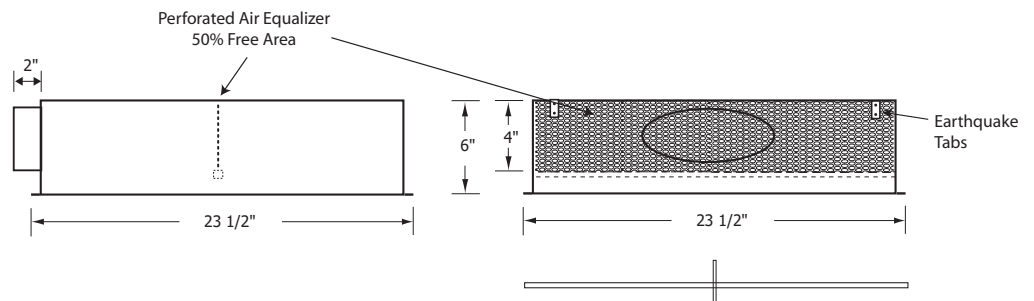
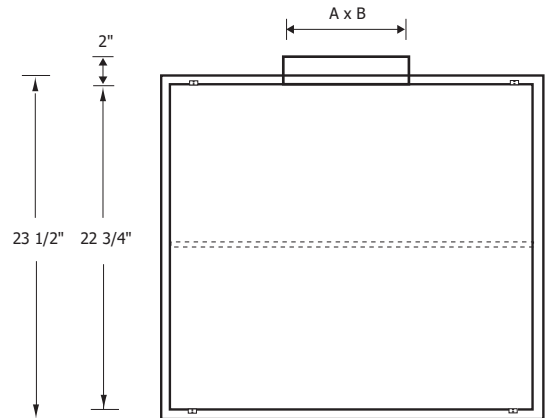


PERFAIR-XS

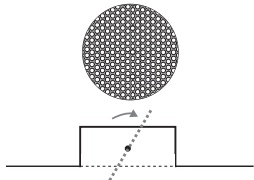
Compact plenum with side duct connection, recommended when height in the ceiling is between 6" and 14".

Select Model				
✓	Model	Duct Size	A	B
	PERFAIR-XS 2404	4	3 7/8	3 7/8
	PERFAIR-XS 2405	5	4 7/8	4 7/8
	PERFAIR-XS 2406	6	7 9/16	3 1/8
	PERFAIR-XS 2408	8	10 1/2	3 1/4

All dimensions in inches

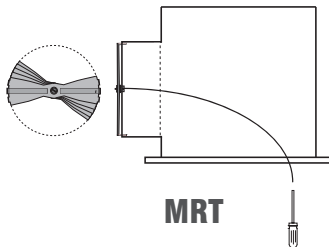


Air Volume Damper



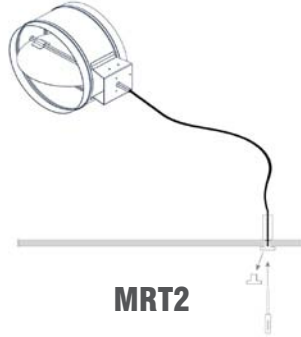
R

Perforated damper + air equalizer



MRT

Manually operated damper, cable inside the plenum, adjustment through face



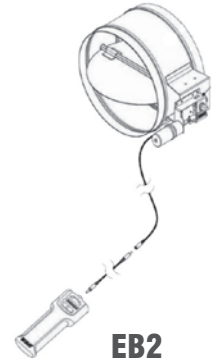
MRT2

Manually operated damper, cable through drywall with termination fixture



EB

Battery operated electro-balance damper with remote control, cable through face



EB2

Battery operated electro-balance damper with remote control, cable through drywall with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)	

<p>Project:</p> <p>Engineer:</p> <p>Architect:</p> <p>Contractor:</p>

OTO-UV Series Architectural Swirl UV Diffuser

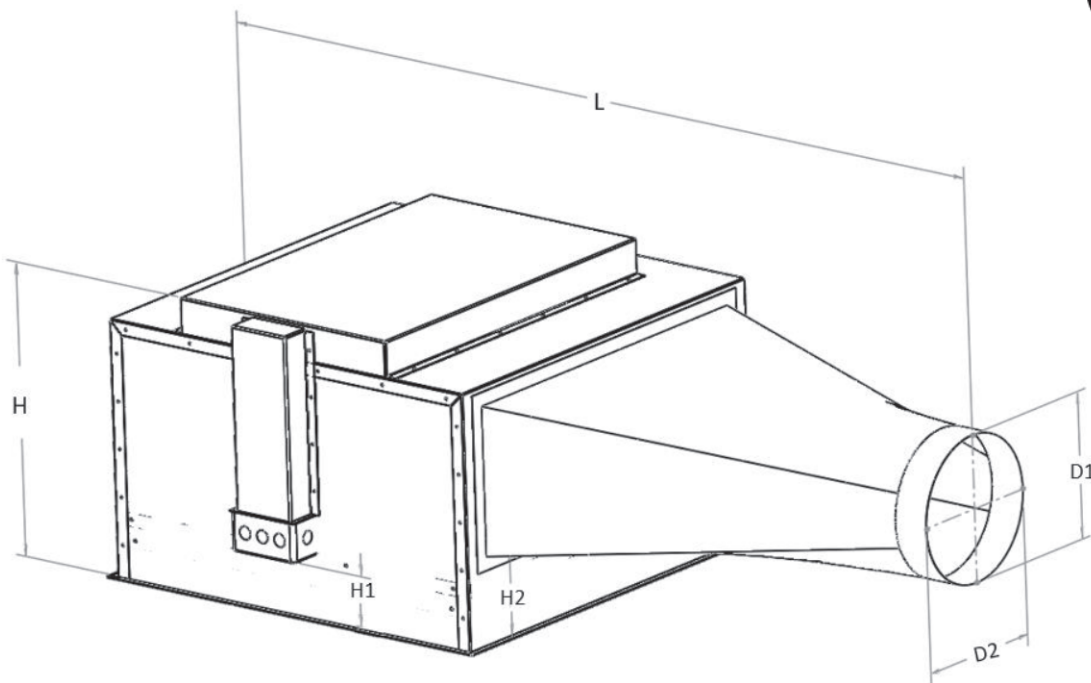
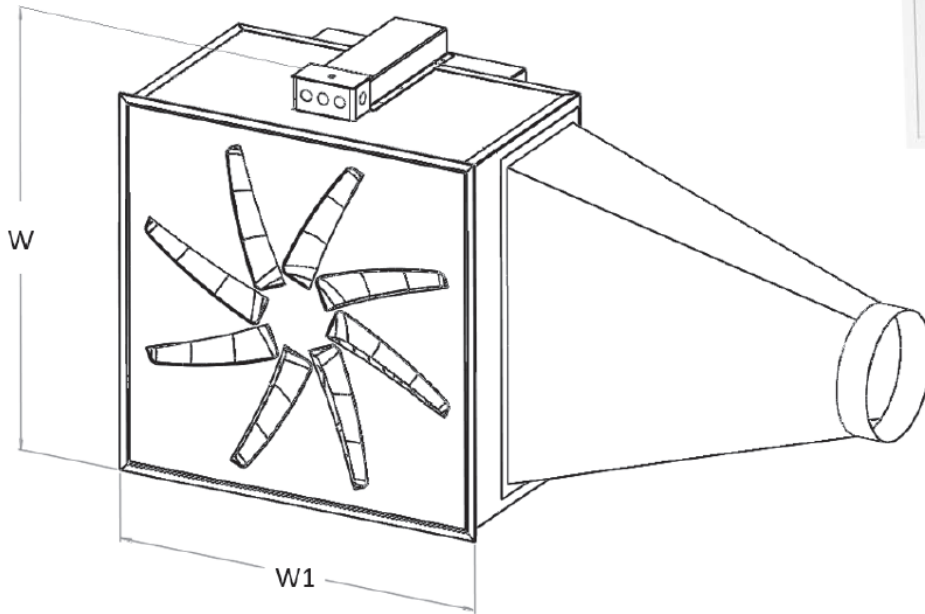
Material | Powder coated stamped heavy gauge steel face, aluminum plenum, UVC lamp and 2" UV-resistant pleated filter

Air Pattern | Fix high induction swirl pattern



OTO-UV

Patent Pending



Dimensions	
W	25 2/3"
W1	23 7/8"
H	15 7/8"
H1	3 9/16"
H2	4 3/4"
L	47 1/2"



Select Model		
Model	D1	D2
OTO-UV 2406	5 7/8"	5 7/8"
OTO-UV 2407	6 7/8"	6 7/8"
OTO-UV 2408	7 7/8"	7 7/8"
OTO-UV 2410	11"	8"
OTO-UV 2412	16"	8"

Filter	
UVFILTER-W-M9	2" MERV-9 UV Resistant White Pleated Filter
UVFILTER-C-M7	2" MERV-7 UV Resistant Carbon Pleated Filter

Select Finish	
	Powder Coated White RAL9016
	Other RAL :



Project:
Engineer:
Architect:
Contractor:

PLAY-C Series Adjustable Sectors Round Diffusers

Material | Powder coated stamped heavy gauge steel, gvanized steel plenum.

Air Pattern | 100% horizontally adjustable.

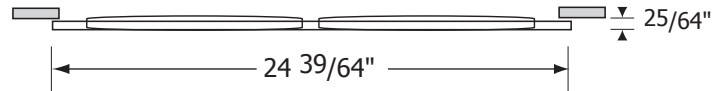
Ceiling Types | Open and Closed.



PLAY-C
by MADEL®

PATENTED

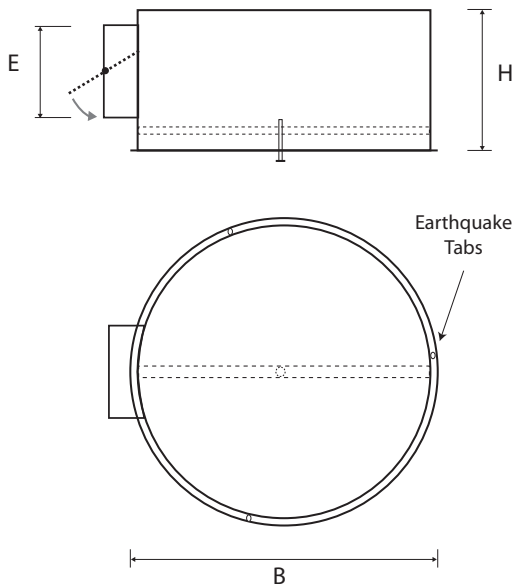
Select Model			
✓	Imperial	✓	Metric
	PLAY-C 25		PLAY-C 625
Select Finish			
	Powder Coated White RAL 9016		
	Other RAL:		



Plenum

PERFAIR-CS

Cylindrical with side duct connection, ideal for closed ceilings.



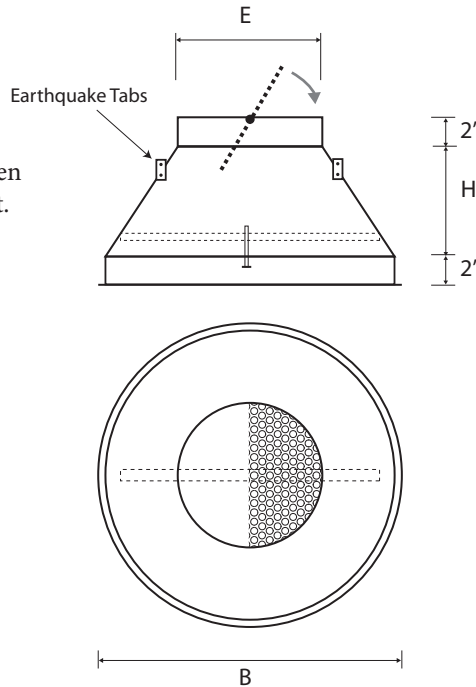
Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CS 1205	5	11 3/8	4 7/8	9
	PERFAIR-CS 1206	6	11 3/8	5 7/8	9
	PERFAIR-CS 1208	8	11 3/8	7 7/8	9
	PERFAIR-CS 1606	6	15 1/4	5 7/8	10
	PERFAIR-CS 1608	8	15 1/4	7 7/8	10
	PERFAIR-CS 2006	6	19	5 7/8	12
	PERFAIR-CS 2008	8	19	7 7/8	12
	PERFAIR-CS 2010	10	19	9 7/8	12
	PERFAIR-CS 2506	6	24	5 7/8	13
	PERFAIR-CS 2508	8	24	7 7/8	13
	PERFAIR-CS 2510	10	24	9 7/8	13
	PERFAIR-CS 2512	12	24	11 7/8	13
	PERFAIR-CS 3312	12	33	11 7/8	16

All dimensions in inches

Plenum (continued)

PERFAIR-CT

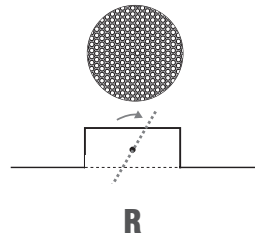
Conical with top duct connection, ideal for open ceilings with visible duct.



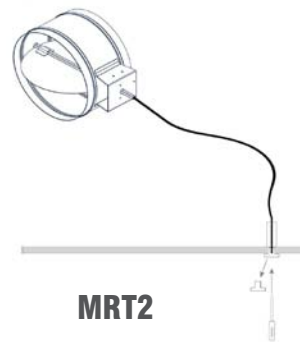
Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CT 1205	5	11 3/8	4 7/8	6
	PERFAIR-CT 1206	6	11 3/8	5 7/8	6
	PERFAIR-CT 1208	8	11 3/8	7 7/8	6
	PERFAIR-CT 1606	6	15 1/4	5 7/8	6
	PERFAIR-CT 1608	8	15 1/4	7 7/8	6
	PERFAIR-CT 2006	6	19	5 7/8	8
	PERFAIR-CT 2008	8	19	7 7/8	8
	PERFAIR-CT 2010	10	19	9 7/8	8
	PERFAIR-CT 2506	6	24	5 7/8	8
	PERFAIR-CT 2508	8	24	7 7/8	8
	PERFAIR-CT 2510	10	24	9 7/8	8
	PERFAIR-CT 2512	12	24	11 7/8	8
	PERFAIR-CT 3312	12	33	11 7/8	12

All dimensions in inches

Air Volume Damper



R
Perforated damper + air equalizer



MRT2

Manually operated damper, cable through drywall with termination fixture



EB2

Battery operated electro-balance damper with remote control, cable through drywall with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT2	Manually operated
EB2	Electro-balanced, battery powered

Cable Length (MRT2 or EB2)	

Project:

Engineer:

Architect:

Contractor:

PLAY-R Series Adjustable Sectors Rectangular Diffusers

PATENTED

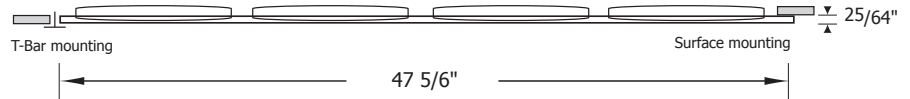


PLAY-R
by MADEL®

Material | Powder coated stamped heavy gauge steel,
galvanized steel plenum.

Air Pattern | 100% horizontally adjustable.

Ceiling Types | False, Open and Closed.



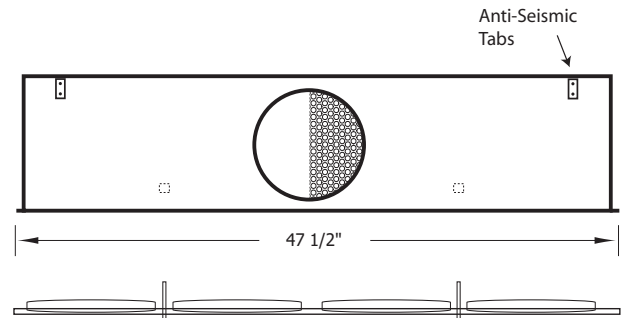
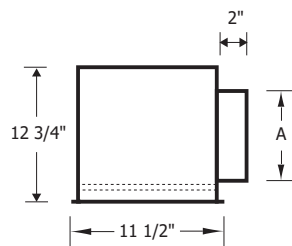
Select Model			
✓	Imperial	✓	Metric
	PLAY-R 48 12		PLAY-R 1215 300

Select Finish	
	Powder Coated White RAL 9016
	Other RAL:

Plenum

PERFAIR-RS

Side duct connection.



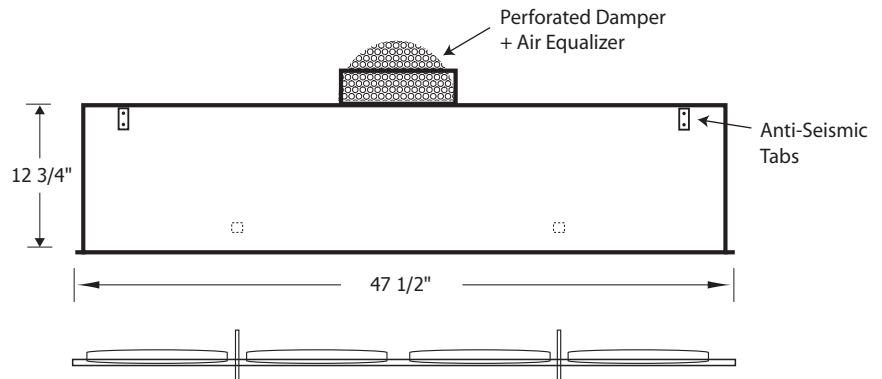
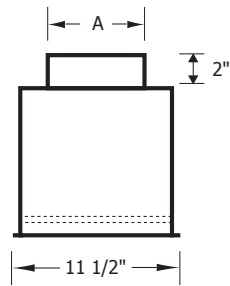
Select Model			
✓	Model	Duct Size	A
	PERFAIR-RS 4812 06	6	5 7/8
	PERFAIR-RS 4812 08	8	7 7/8
	PERFAIR-RS 4812 10	10	9 7/8
	PERFAIR-RS 4812 12	12	11 7/8

All dimensions in inches

Plenum (continued)

PERFAIR-RT

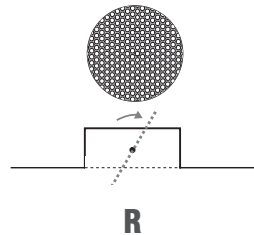
Top duct connection.



Select Model			
✓	Model	Duct Size	A
	PERFAIR-RT 4812 06	6	5 7/8
	PERFAIR-RT 4812 08	8	7 7/8
	PERFAIR-RT 4812 10	10	9 7/8

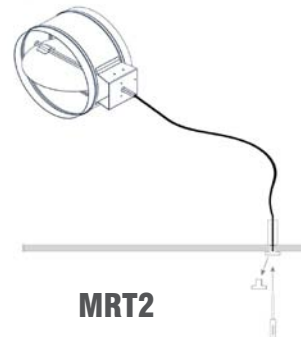
All dimensions in inches

Air Volume Damper



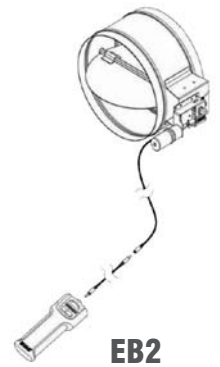
R

Perforated damper + air equalizer



MRT2

Manually operated damper, cable through drywall with termination fixture



EB2

Battery operated electro-balance damper with remote control, cable through drywall with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT2	Manually operated
EB2	Electro-balanced, battery powered

Cable Length (MRT2 or EB2)	

Project:
Engineer:
Architect:
Contractor:

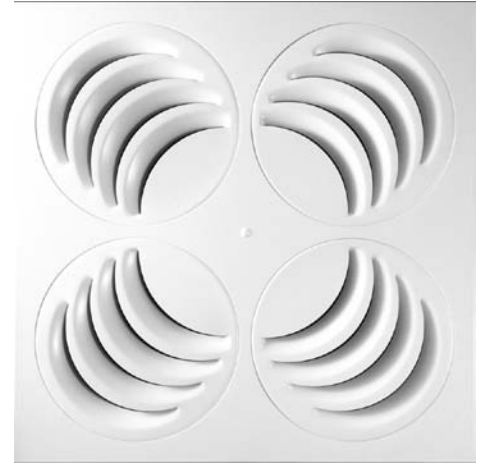


PLAY-S Series Adjustable Sectors Square Diffuser

Material | Powder coated stamped heavy gauge steel, galvanized steel plenum.

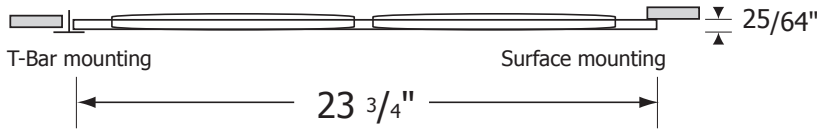
Air Pattern | 100% horizontally adjustable.

Ceiling Types | False, Open and Closed.



PLAY-S
by MADEL®

PATENTED



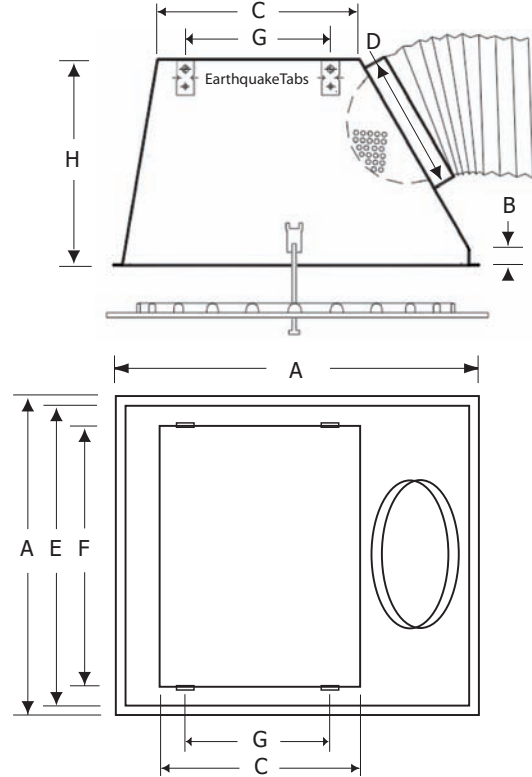
Select Model			
✓	Imperial	✓	Metric
	PLAY-S 24		PLAY-S 610

Configuration	
	Swirl (factory default)
	4 Way
	3 Way
	2 Way Corner
	2 Way Opposite
	1 Way
	Downward

Select Finish	
	Powder Coated White RAL 9016
	Other RAL:

Matching PERFAIR plenum ordered separately

Plenum



PERFAIR-SS

Trapezoidal with side duct connection, recommended for closed ceilings and false ceilings.

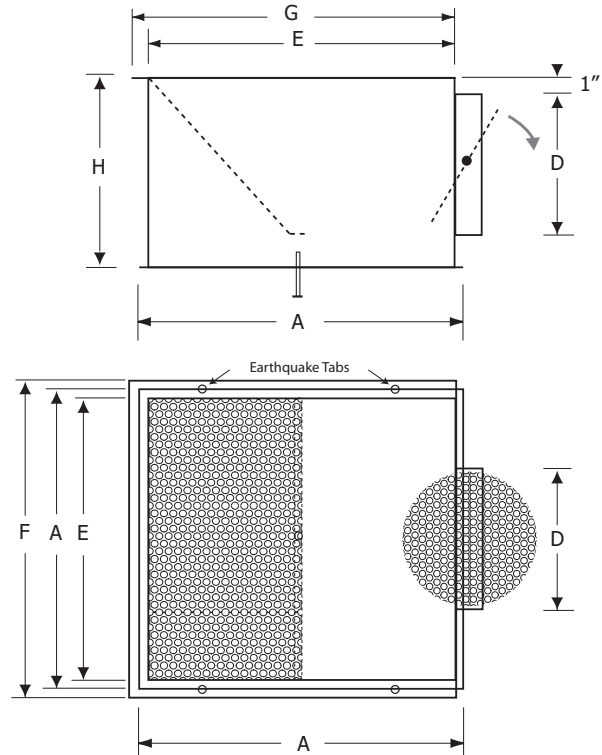
Select Model										
✓	Model	Duct Size	A	B	C	D	E	F	G	H
	PERFAIR-SS 1205	5	11 1/2	1	5 3/4	4 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1206	6	11 1/2	1	5 3/4	5 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1208	8	11 1/2	1	5 3/4	7 7/8	10 3/4	10 1/2	6 5/8	12
	PERFAIR-SS 1608	8	15 3/8	1	7 1/2	7 7/8	14 5/8	13 5/8	8 5/8	12
	PERFAIR-SS 2010	10	19 1/4	1	8 1/2	9 7/8	18 5/8	17 5/8	8 5/8	12
	PERFAIR-SS 2405	5	23 1/2	1	10 1/2	4 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2406	6	23 1/2	1	10 1/2	5 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2408	8	23 1/2	1	10 1/2	7 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2410	10	23 1/2	1	10 1/2	9 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2412	12	23 1/2	1	10 1/2	11 7/8	22 5/8	21 5/8	8 5/8	13 25/32

All dimensions in inches

Plenum (continued)

PERFAIR-SSS

Rectangular with side connection, recommended for open ceilings with rigid duct entering from the side.



Select Model								
✓	Model	Duct Size	A	D	E	F	G	H
	PERFAIR-SSS 1205	5	11 1/2	4 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1206	6	11 1/2	5 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1208	8	11 1/2	7 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1608	8	15 3/8	7 7/8	14 5/8	16 5/8	15 5/8	12
	PERFAIR-SSS 2010	10	19 1/4	9 7/8	18 5/8	21 5/8	19 5/8	14
	PERFAIR-SSS 2405	5	23 1/2	4 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2406	6	23 1/2	5 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2408	8	23 1/2	7 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2410	10	23 1/2	9 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2412	12	23 1/2	11 7/8	22 5/8	24 5/8	23 5/8	14

All dimensions in inches

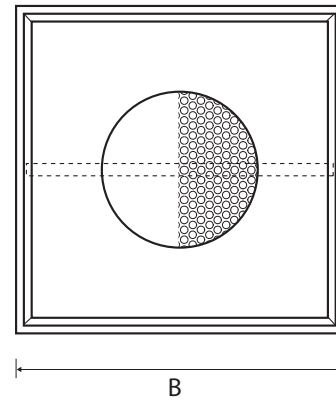
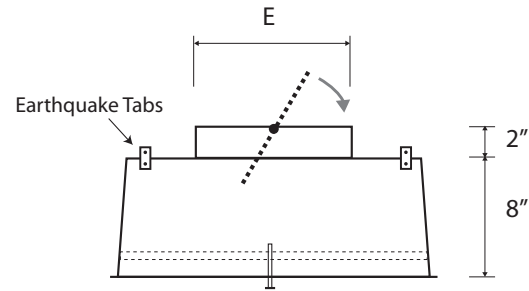
Plenum (continued)

PERFAIR-ST

Top duct connection, recommended for open ceilings with visible duct.

Select Model				
✓	Model	Duct Size	B	E
	PERFAIR-ST 1206	6	11 1/2	5 7/8
	PERFAIR-ST 1208	8	11 1/2	7 7/8
	PERFAIR-ST 2406	6	23 1/2	5 7/8
	PERFAIR-ST 2408	8	23 1/2	7 7/8
	PERFAIR-ST 2410	10	23 1/2	9 7/8
	PERFAIR-ST 2412	12	23 1/2	11 7/8

All dimensions in inches

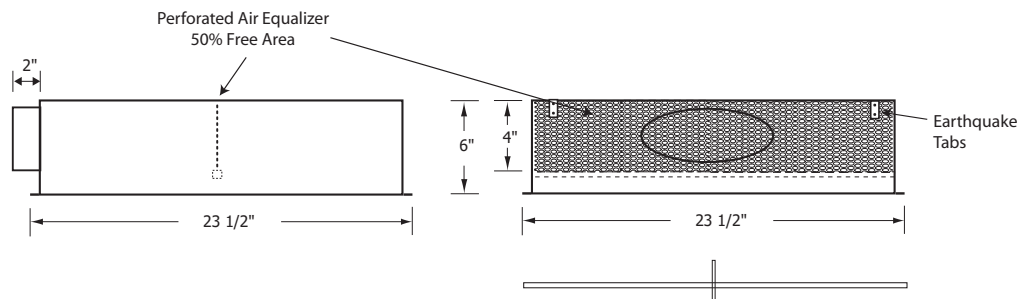
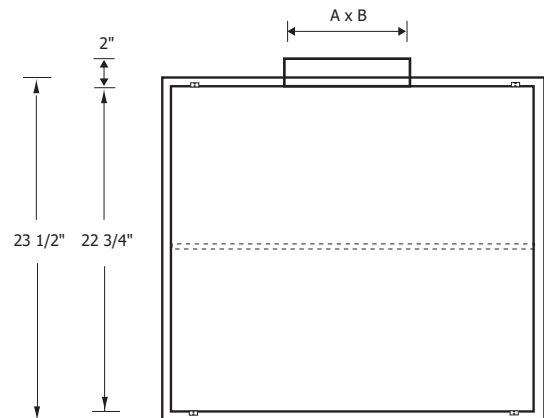


PERFAIR-XS

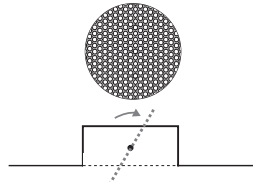
Compact plenum with side duct connection, recommended when height in the ceiling is between 6" and 14".

Select Model				
✓	Model	Duct Size	A	B
	PERFAIR-XS 2404	4	3 7/8	3 7/8
	PERFAIR-XS 2405	5	4 7/8	4 7/8
	PERFAIR-XS 2406	6	7 9/16	3 1/8
	PERFAIR-XS 2408	8	10 1/2	3 1/4

All dimensions in inches

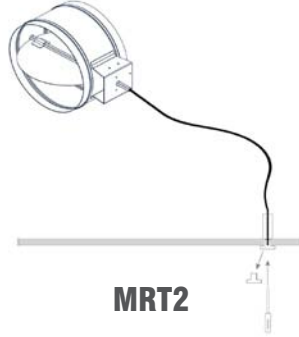


Air Volume Damper



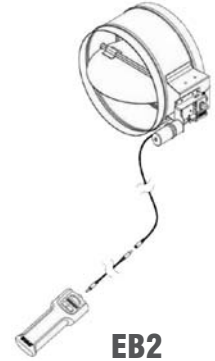
R

Perforated damper +
air equalizer



MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation
Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT2	Manually operated, termination fixture
EB2	Electro-balanced, battery powered, termination fixture
Cable Length (MRT2 or EB2)	

<p>Project:</p> <p>Engineer:</p> <p>Architect:</p> <p>Contractor:</p>

PLAY-UV Series Adjustable UV Diffuser

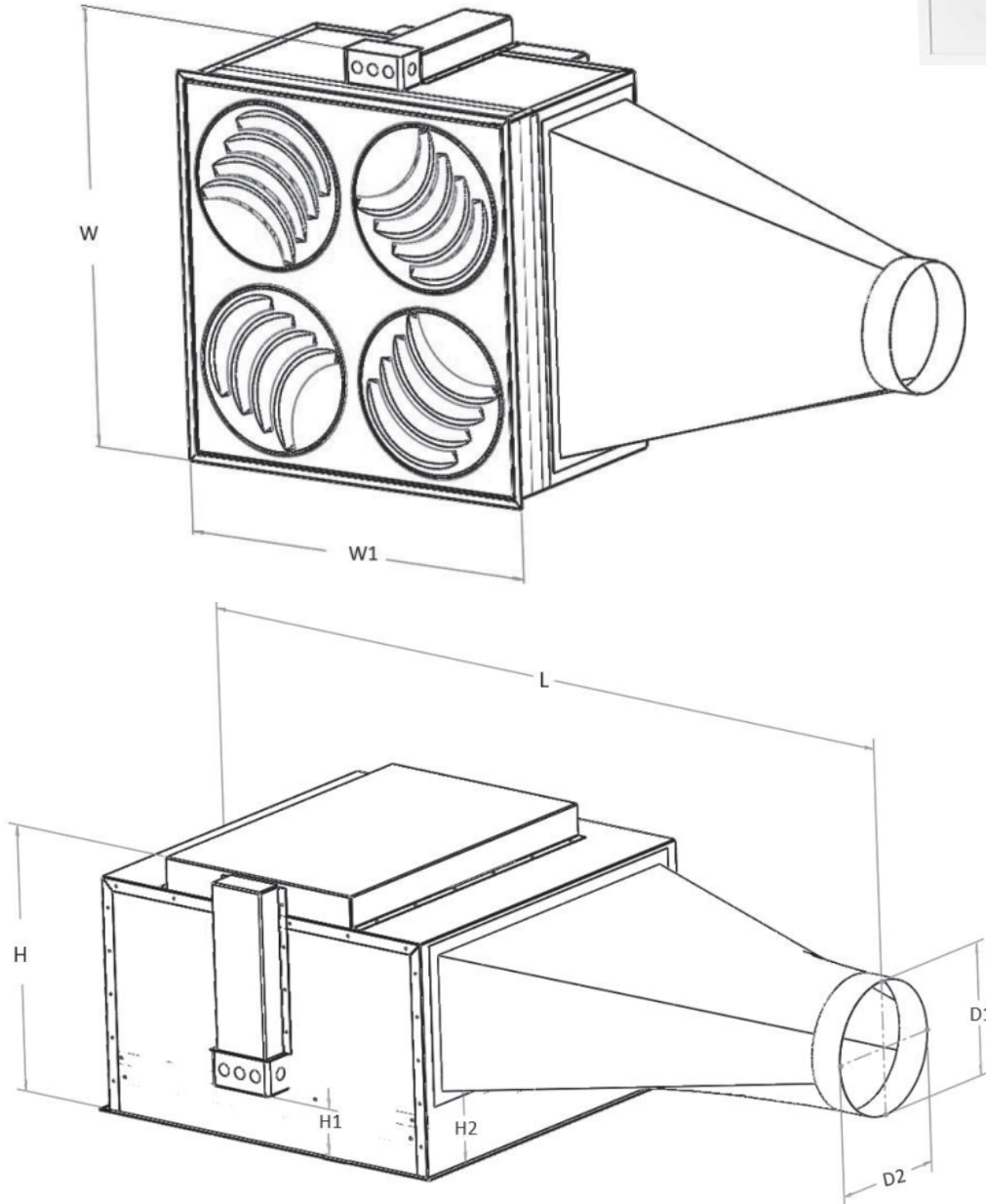
Material | Powder coated stamped heavy gauge steel face, aluminum plenum, UVC lamp and 2" UV-resistant pleated filter

Air Pattern | Adjustable pattern, high discharge velocity



PLAY-UV

**Patent
Pending**



Dimensions	
W	25 2/3"
W1	23 7/8"
H	15 7/8"
H1	3 9/16"
H2	4 3/4"
L	47 1/2"



Select Model		
Model	D1	D2
PLAY-UV 2406	5 7/8"	5 7/8"
PLAY-UV 2407	6 7/8"	6 7/8"
PLAY-UV 2408	7 7/8"	7 7/8"
PLAY-UV 2410	11"	8"
PLAY-UV 2412	16"	8"

Filter	
UVFILTER-W-M9	2" MERV-9 UV Resistant White Pleated Filter
UVFILTER-C-M7	2" MERV-7 UV Resistant Carbon Pleated Filter

Select Finish	
	Powder Coated White RAL9016
	Other RAL :



Project:	
Engineer:	
Architect:	
Contractor:	

RXO-C Series Round Stamped Steel Swirl Diffuser

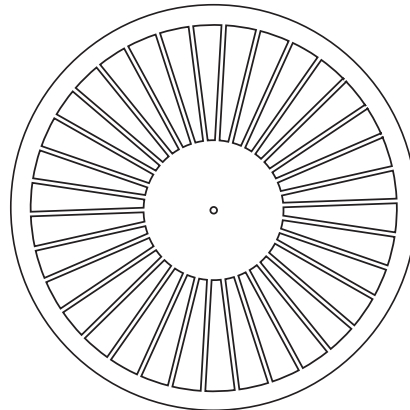
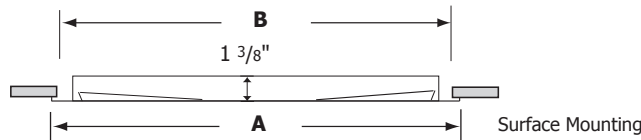
Material | Powder coated stamped heavy gauge steel, galvanized steel plenum

Air Pattern | Fix swirl pattern

Ceiling Types | Surface or Visible Duct



RXO-C

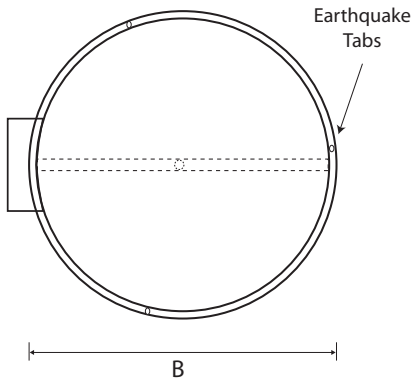
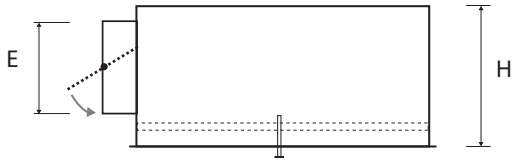


Select Model			
✓	Model	A	B
	RXO-C 16	15 3/4"	14 9/16"
	RXO-C 20	19 31/64"	18 1/2"
	RXO-C 25	24 13/32"	22 23/64"

Select Finish	
	Powder Coated White RAL 9016
	Other RAL:

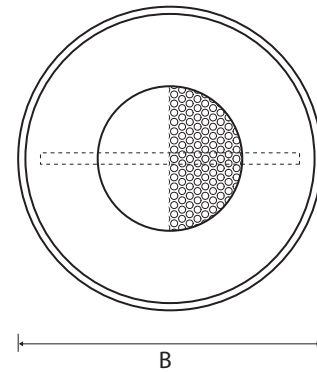
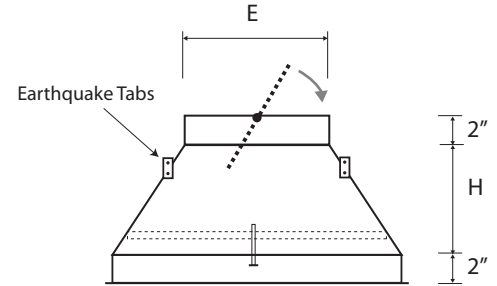
Matching PERFAIR plenum ordered separately

Plenum



PERFAIR-CS

Cylindrical with side duct connection, ideal for closed ceilings.



PERFAIR-CT

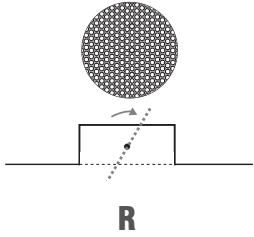
Conical with top duct connection, ideal for open ceilings with visible duct.

Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CS 1205	5	11 3/8	4 7/8	9
	PERFAIR-CS 1206	6	11 3/8	5 7/8	9
	PERFAIR-CS 1208	8	11 3/8	7 7/8	9
	PERFAIR-CS 1606	6	15 1/4	5 7/8	10
	PERFAIR-CS 1608	8	15 1/4	7 7/8	10
	PERFAIR-CS 2006	6	19	5 7/8	12
	PERFAIR-CS 2008	8	19	7 7/8	12
	PERFAIR-CS 2010	10	19	9 7/8	12
	PERFAIR-CS 2506	6	24	5 7/8	13
	PERFAIR-CS 2508	8	24	7 7/8	13
	PERFAIR-CS 2510	10	24	9 7/8	13
	PERFAIR-CS 2512	12	24	11 7/8	13
	PERFAIR-CS 3312	12	33	11 7/8	16

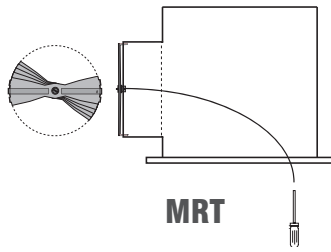
Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CT 1205	5	11 3/8	4 7/8	6
	PERFAIR-CT 1206	6	11 3/8	5 7/8	6
	PERFAIR-CT 1208	8	11 3/8	7 7/8	6
	PERFAIR-CT 1606	6	15 1/4	5 7/8	6
	PERFAIR-CT 1608	8	15 1/4	7 7/8	6
	PERFAIR-CT 2006	6	19	5 7/8	8
	PERFAIR-CT 2008	8	19	7 7/8	8
	PERFAIR-CT 2010	10	19	9 7/8	8
	PERFAIR-CT 2506	6	24	5 7/8	8
	PERFAIR-CT 2508	8	24	7 7/8	8
	PERFAIR-CT 2510	10	24	9 7/8	8
	PERFAIR-CT 2512	12	24	11 7/8	8
	PERFAIR-CT 3312	12	33	11 7/8	12

All dimensions in inches

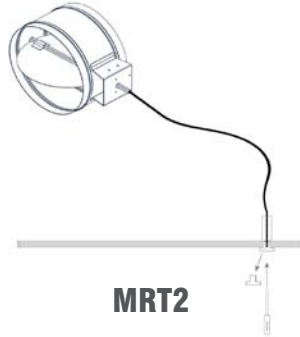
Air Volume Dampers



R
Perforated damper +
air equalizer



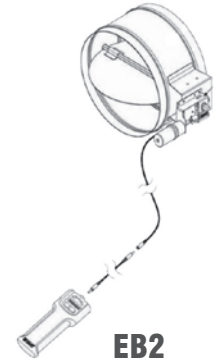
MRT
Manually operated damper,
cable inside the plenum,
adjustment through face



MRT2
Manually operated damper,
cable through drywall with
termination fixture



EB
Battery operated
electro-balance damper
with remote control,
cable through face



EB2
Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation
Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture
Cable Length (MRT2 or EB2)	

Project:

Engineer:

Architect:

Contractor:

RXO-C Series Round Stamped Steel Swirl Diffuser

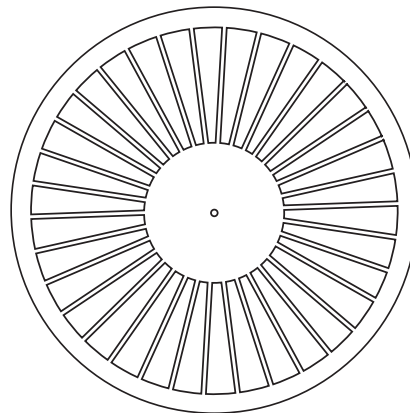
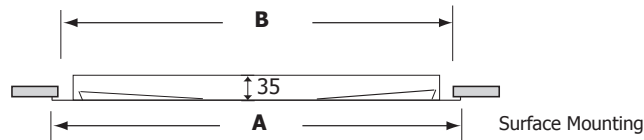
Material | Powder coated stamped heavy gauge steel

Air Pattern | Fix swirl pattern

Ceiling Types | Surface or Visible Duct



RXO-C



Select Model			
✓	Model	A	B
	RXO-C 400	400 mm	370 mm
	RXO-C 500	500 mm	470 mm
	RXO-C 625	625 mm	568 mm

Select Finish	
	Powder Coated White RAL 9016
	Other RAL:

Project:	
Engineer:	
Architect:	
Contractor:	

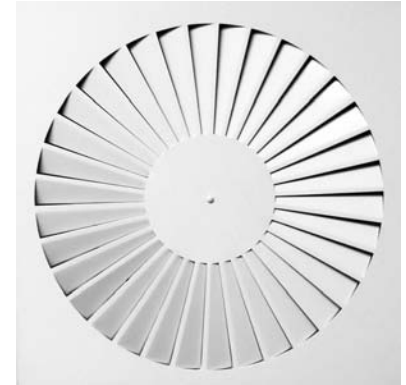
Important! PERFAIR plenums required

RXO-S Series Square Stamped Steel Swirl Diffuser

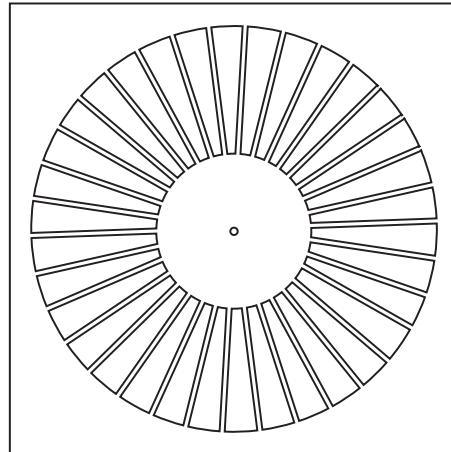
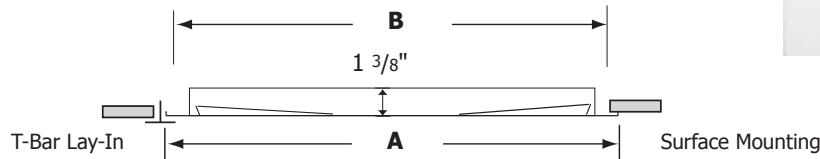
Material | Powder coated stamped heavy gauge steel, galvanized steel plenum.

Air Pattern | Fix horizontal swirl pattern

Ceiling Types | All



RXO-S

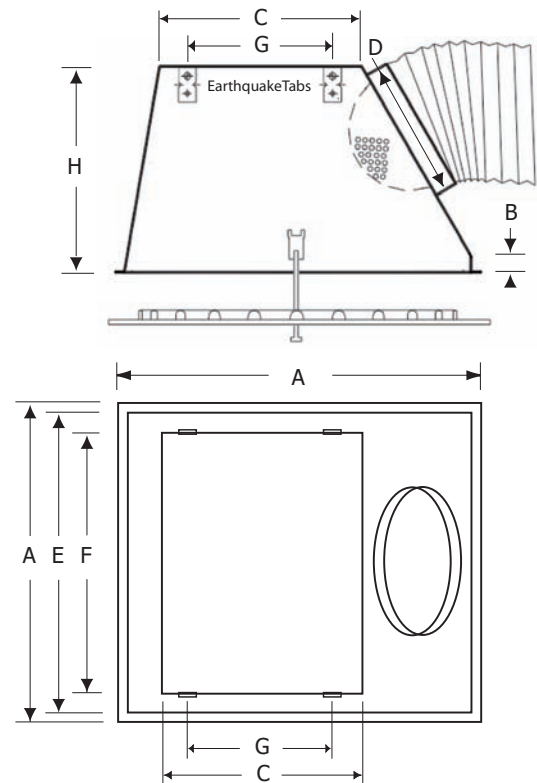


Select Model			
✓	Model	A	B
	RXO-S 16	15 35/64"	14 9/16"
	RXO-S 20	19 31/64"	18 1/2"
	RXO-S 24	23 3/4"	22 23/64"
	RXO-S400 24	23 3/4"	22 23/64"
	RXO-S500 24	23 3/4"	22 23/64"

Select Finish	
	Powder Coated White RAL 9016
	Other RAL:

Matching PERFAIR plenum ordered separately

Plenum



PERFAIR-SS

Trapezoidal with side duct connection, recommended for closed ceilings and false ceilings.

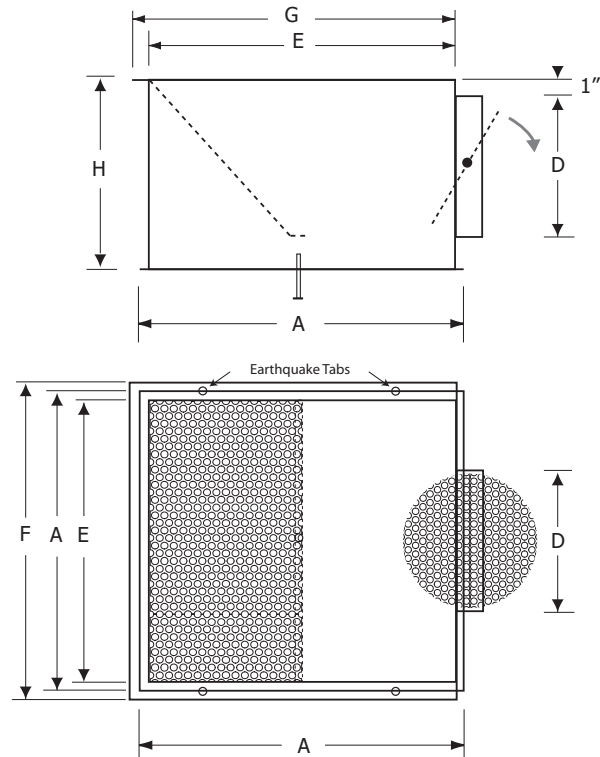
Select Model										
✓	Model	Duct Size	A	B	C	D	E	F	G	H
	PERFAIR-SS 1205	5	11 1/2	1	5 3/4	4 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1206	6	11 1/2	1	5 3/4	5 7/8	10 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1208	8	11 1/2	1	5 3/4	7 7/8	10 3/4	10 1/2	6 5/8	12
	PERFAIR-SS 1608	8	15 3/8	1	7 1/2	7 7/8	14 5/8	13 5/8	8 5/8	12
	PERFAIR-SS 2010	10	19 1/4	1	8 1/2	9 7/8	18 5/8	17 5/8	8 5/8	12
	PERFAIR-SS 2405	5	23 1/2	1	10 1/2	4 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2406	6	23 1/2	1	10 1/2	5 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2408	8	23 1/2	1	10 1/2	7 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2410	10	23 1/2	1	10 1/2	9 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2412	12	23 1/2	1	10 1/2	11 7/8	22 5/8	21 5/8	8 5/8	13 25/32

All dimensions in inches

Plenum (continued)

PERFAIR-SSS

Rectangular with side connection, recommended for open ceilings with rigid duct entering from the side.



Select Model								
✓	Model	Duct Size	A	D	E	F	G	H
	PERFAIR-SSS 1205	5	11 1/2	4 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1206	6	11 1/2	5 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1208	8	11 1/2	7 7/8	10 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1608	8	15 3/8	7 7/8	14 5/8	16 5/8	15 5/8	12
	PERFAIR-SSS 2010	10	19 1/4	9 7/8	18 5/8	21 5/8	19 5/8	14
	PERFAIR-SSS 2405	5	23 1/2	4 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2406	6	23 1/2	5 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2408	8	23 1/2	7 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2410	10	23 1/2	9 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2412	12	23 1/2	11 7/8	22 5/8	24 5/8	23 5/8	14

All dimensions in inches

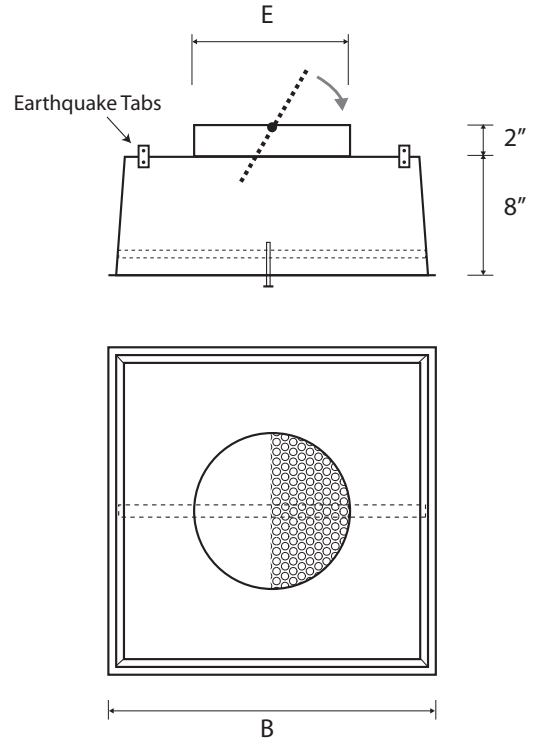
Plenum (continued)

PERFAIR-ST

Top duct connection, recommended for open ceilings with visible duct.

Select Model				
✓	Model	Duct Size	B	E
	PERFAIR-ST 1206	6	11 1/2	5 7/8
	PERFAIR-ST 1208	8	11 1/2	7 7/8
	PERFAIR-ST 2406	6	23 1/2	5 7/8
	PERFAIR-ST 2408	8	23 1/2	7 7/8
	PERFAIR-ST 2410	10	23 1/2	9 7/8
	PERFAIR-ST 2412	12	23 1/2	11 7/8

All dimensions in inches

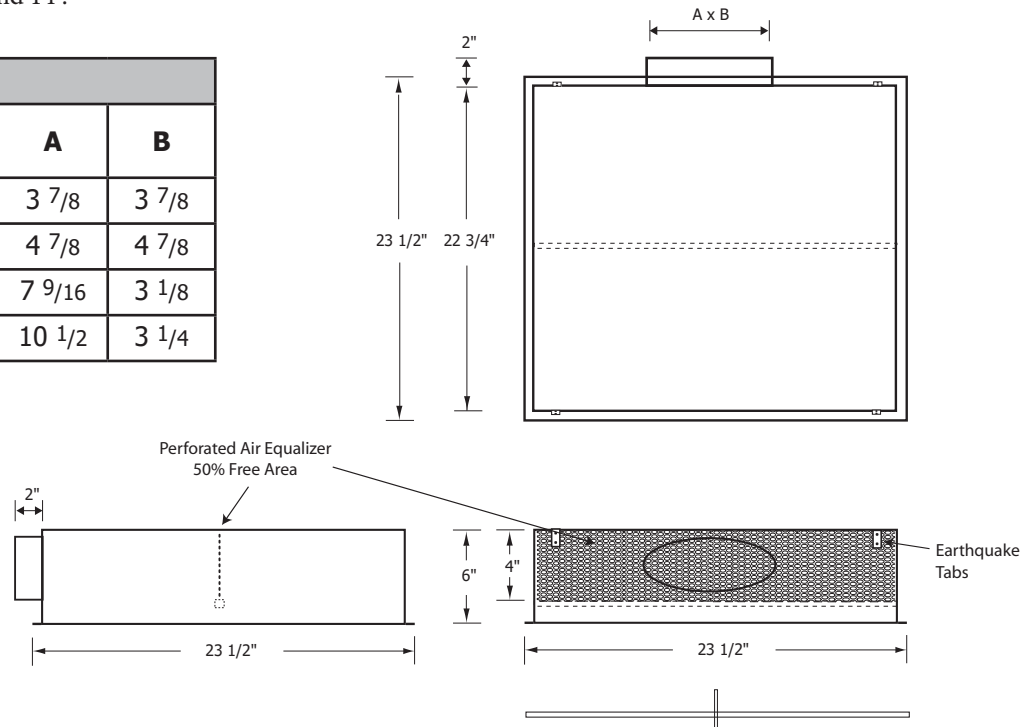


PERFAIR-XS

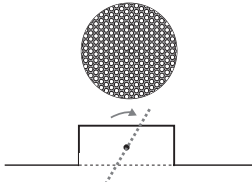
Compact plenum with side duct connection, recommended when height in the ceiling is between 6" and 14".

Select Model				
✓	Model	Duct Size	A	B
	PERFAIR-XS 2404	4	3 7/8	3 7/8
	PERFAIR-XS 2405	5	4 7/8	4 7/8
	PERFAIR-XS 2406	6	7 9/16	3 1/8
	PERFAIR-XS 2408	8	10 1/2	3 1/4

All dimensions in inches

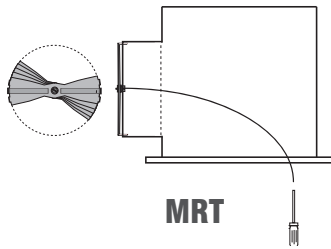


Air Volume Damper



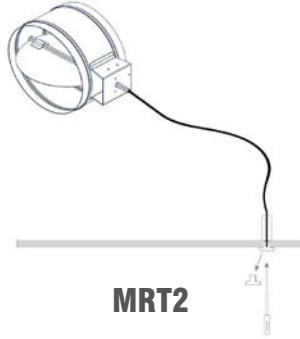
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)	

Project:

Engineer:

Architect:

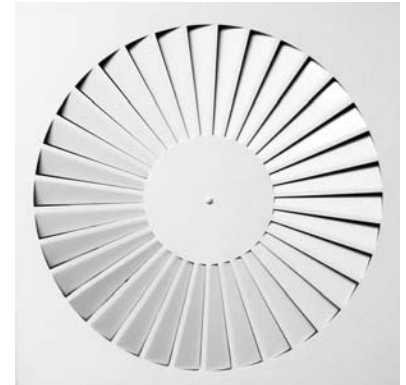
Contractor:

RXO-S Series Square Stamped Steel Swirl Diffuser

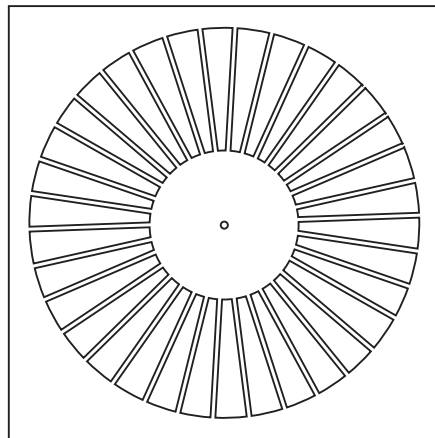
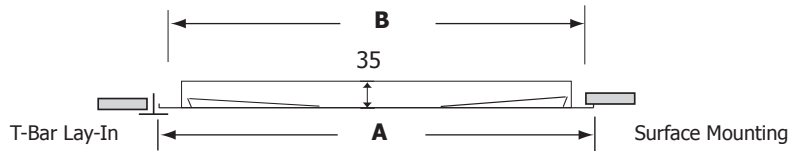
Material | Powder coated stamped heavy gauge steel

Air Pattern | Fix swirl pattern

Ceiling Types | All



RXO-S



Select Model			
✓	Model	A	B
	RXO-S 400	395 mm	370 mm
	RXO-S 500	495 mm	470 mm
	RXO-S 605	600 mm	568 mm
	RXO-S400 605	600 mm	568 mm
	RXO-S500 605	600 mm	568 mm

Select Finish	
	Powder Coated White RAL 9016
	Other RAL:

Project:	
Engineer:	
Architect:	
Contractor:	

Important! PERFAIR plenums required

RXO-S-ALU Series Square Stamped Aluminum Swirl Diffuser

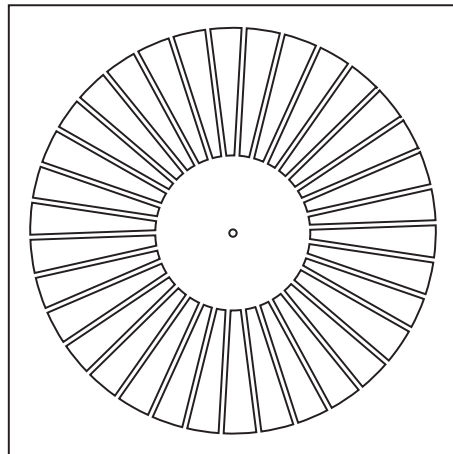
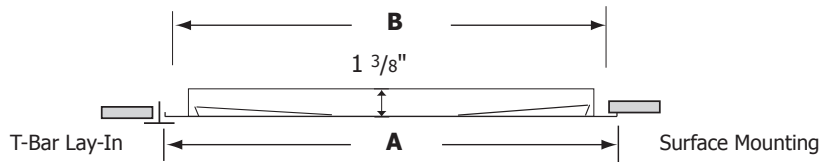
Material | Powder coated stamped heavy gauge aluminum

Air Pattern | Fix swirl pattern

Ceiling Types | All



RXO-S-ALU



Select Model			
✓	Model	A	B
	RXO-S-ALU 24	23 3/4"	22 23/64"

Select Finish	
	Powder Coated White RAL 9016
	Other RAL:

Important! PERFAIR plenums required

<p>Project:</p> <p>Engineer:</p> <p>Architect:</p> <p>Contractor:</p>

SKC-C Series Constant Air Volume Damper For Circular Duct

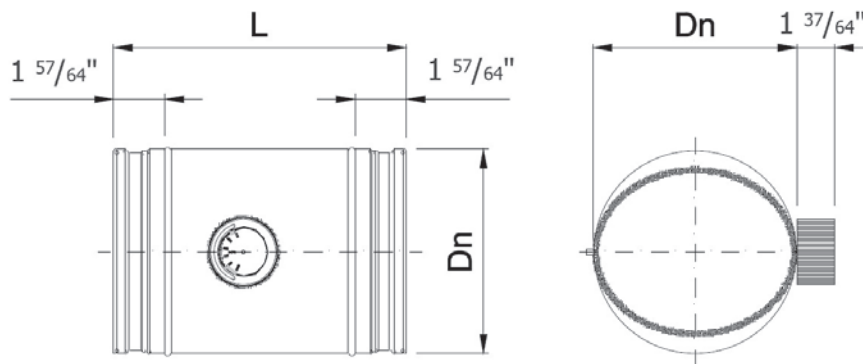
Material | Galvanized Steel

Pressure | 0.2 - 4 in.w.g. (50 - 1000 Pa)

Ajustment | manually pre-set, self-adjustable



SKC-C



Select Model

✓	Model	Dn	L	cfm	Min Pressure (in.w.g.)	Max Pressure (in.w.g.)
	SKC-C 04	3 55/64"	8 55/64"	59 - 147	0.201 - 0.442	4.019
	SKC-C 05	4 27/32"	10 5/8"	59 - 206	0.201 - 0.321	4.019
	SKC-C 06	6 7/32"	11 39/64"	106 - 353	0.201 - 0.402	4.019
	SKC-C 08	7 51/64"	11 39/64"	147 - 529	0.201 - 0.502	4.019
	SKC-C 10	9 49/64"	13 3/16"	265 - 706	0.201 - 0.543	4.019
	SKC-C 12	12 21/64"	13 25/64"	412 - 1235	0.201 - 0.884	4.019
	SKC-C 14	13 57/64"	14 61/64"	529 - 1529	0.201 - 0.884	4.019
	SKC-C 16	15 43/64"	16 17/32"	588 - 2000	0.201 - 0.884	4.019

Project:

Engineer:

Architect:

Contractor:

SKC-C Series Constant Air Volume Damper For Circular Duct

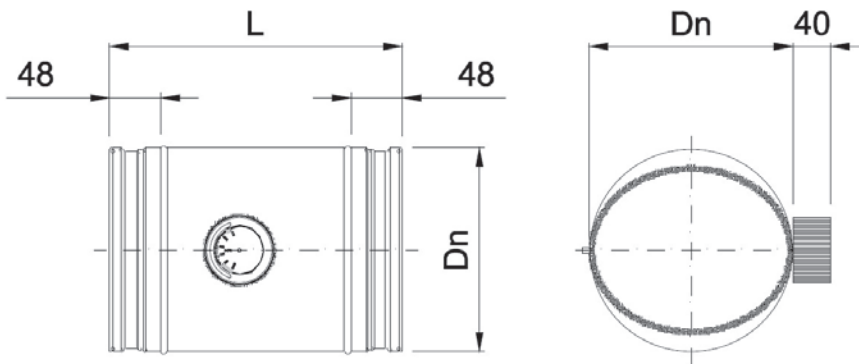
Material | Galvanized Steel

Pressure | between 50 Pa and 1000 Pa

Ajustment | manually pre-set, self-adjustable



SKC-C



Select Model

✓	Model	Dn	L	m3/h	Min Pressure (Pa)	Max Pressure (Pa)
	SKC-C 80	78 mm	225 mm	60 - 150	50 - 115	1000
	SKC-C 100	98 mm	270 mm	100 - 250	50 - 110	1000
	SKC-C 125	123 mm	270 mm	100 - 350	50 - 80	1000
	SKC-C 160	158 mm	295 mm	180 - 600	50 - 100	1000
	SKC-C 200	198 mm	295 mm	250 - 900	50 - 125	1000
	SKC-C 250	248 mm	335 mm	450 - 1200	50 - 135	1000
	SKC-C 315	313 mm	340 mm	700 - 2100	50 - 220	1000
	SKC-C 355	353 mm	380 mm	900 - 2600	50 - 220	1000
	SKC-C 400	398 mm	420 mm	1000 - 3400	50 - 220	1000

Project:

Engineer:

Architect:

Contractor:

SKC-R Series Constant Air Volume Damper For Rectangular Duct

Material | Galvanized Steel

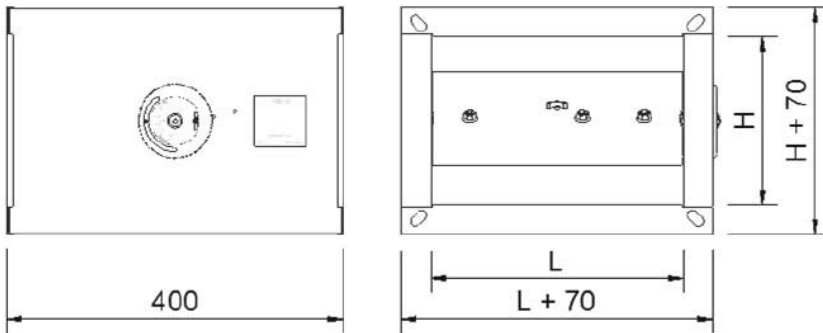
Pressure | between 50 Pa and 1000 Pa

Adjustment | manually pre-set, self-adjustable

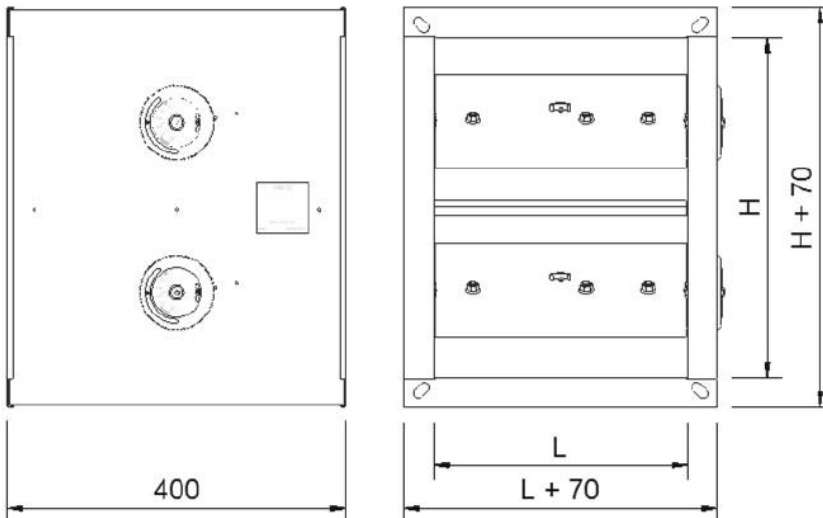


SKC-R

H ≤ 300



H > 400



Select Model			
✓	Model	L	H
	SKC-R		

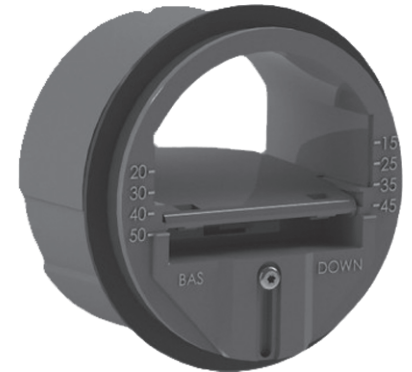
Project:
Engineer:
Architect:
Contractor:

SKP Series Low Pressure Constant Air Volume Damper

Material | Plastic (Rated UL 2043)

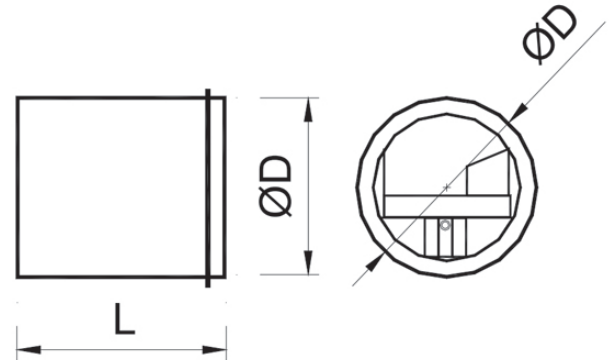
Pressure | 0.2 - 1 in.w.g. (50 - 250 Pa)

Ajustment | manually pre-set, self-adjustable



SKP

Select Model				
✓	Model	D	L	cfm
	SKP 80-30	2 63/64"	2 11/64"	9 - 29
	SKP 100-30	3 25/32"	2 3/4"	9 - 29
	SKP 100-60	3 25/32"	2 3/4"	29 - 59
	SKP 125-30	4 23/32"	3 25/64"	9 - 29
	SKP 125-60	4 23/32"	3 25/64"	29 - 59
	SKP 125-120	4 23/32"	3 25/64"	59 - 106
	SKP 150-150	5 53/64"	3 37/64"	59 - 106
	SKP 150-210	5 53/64"	3 37/64"	106- 176
	SKP 160-150	5 53/64"	3 37/64"	59 - 106
	SKP 160-210	5 53/64"	3 37/64"	106- 176
	SKP 200-300	7 43/64"	3 37/64"	106- 176
	SKP 200-350	7 43/64"	3 37/64"	176 - 294
	SKP 250-500	9 41/64"	3 37/64"	176 - 294
	SKP 250-600	9 41/64"	3 37/64"	294 - 412



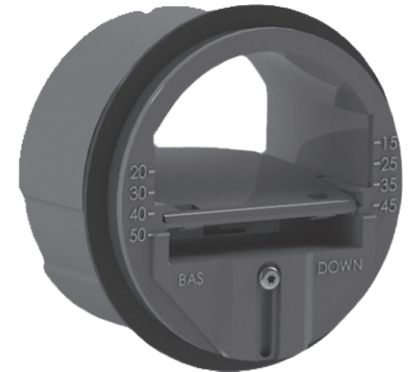
Project:
Engineer:
Architect:
Contractor:

SKP Series Low Pressure Constant Air Volume Damper

Material | Plastic (Rated UL 2043)

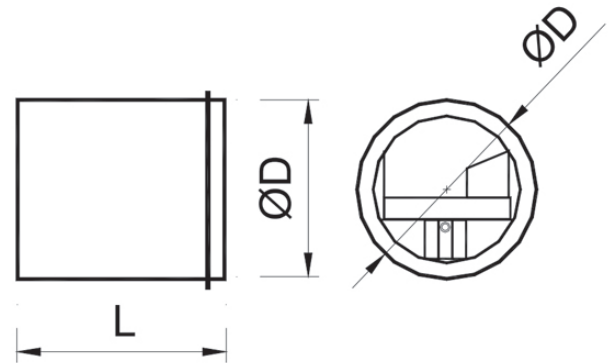
Pressure | between 50 Pa and 250 Pa

Adjustment | manually pre-set, self-adjustable



SKP

Select Model				
✓	Model	D	L	m3/h
	SKP 80-30	76 mm	55 mm	15 - 50
	SKP 100-30	96 mm	70 mm	15 - 50
	SKP 100-60	96 mm	70 mm	50 - 100
	SKP 125-30	120 mm	86 mm	15 - 50
	SKP 125-60	120 mm	86 mm	50 - 100
	SKP 125-120	120 mm	86 mm	100 - 180
	SKP 150-150	148 mm	91 mm	100 - 180
	SKP 150-210	148 mm	91 mm	180 - 300
	SKP 160-150	148 mm	91 mm	100 - 180
	SKP 160-210	148 mm	91 mm	180 - 300
	SKP 200-300	195 mm	91 mm	180 - 300
	SKP 200-350	195 mm	91 mm	300 - 500
	SKP 250-500	245 mm	91 mm	300 - 500
	SKP 250-600	245 mm	91 mm	500 - 700



<p>Project:</p> <p>Engineer:</p> <p>Architect:</p> <p>Contractor:</p>

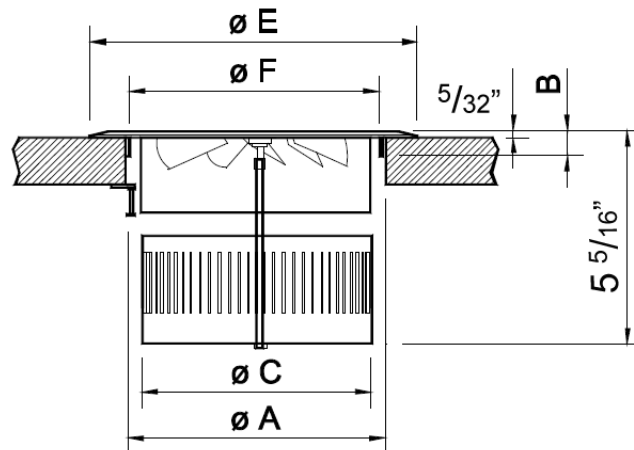
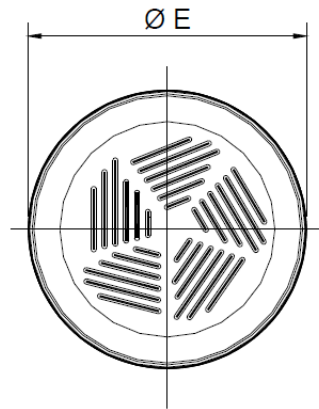
TAU Series Aluminum Floor Diffuser

Material | Aluminum

Air Pattern | Adjustable pattern



TAU



Select Model

✓	Model	A	E	F	C	B
	TAU 06	5 29/32"	7 31/64"	5 33/64"	5 13/64"	3/4"
	TAU 08	7 7/8"	9 29/64"	7 31/64"	7 11/64"	3/4"

Project:

Engineer:

Architect:

Contractor:

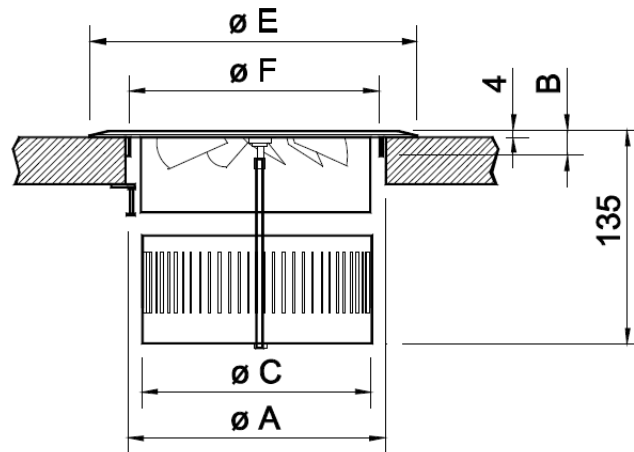
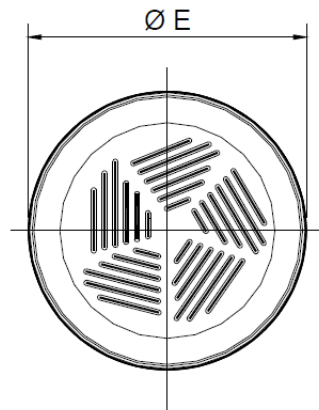
TAU Series Aluminum Floor Diffuser

Material | Aluminum

Air Pattern | Adjustable pattern



TAU



Select Model

✓	Model	A	E	F	C	B
	TAU 150	150 mm	190 mm	140 mm	132 mm	19 mm
	TAU 200	200 mm	240 mm	190 mm	182 mm	19 mm

Project:

Engineer:

Architect:

Contractor:

TWIST Series Stamped Steel Swirl Diffuser With Integral Plenum

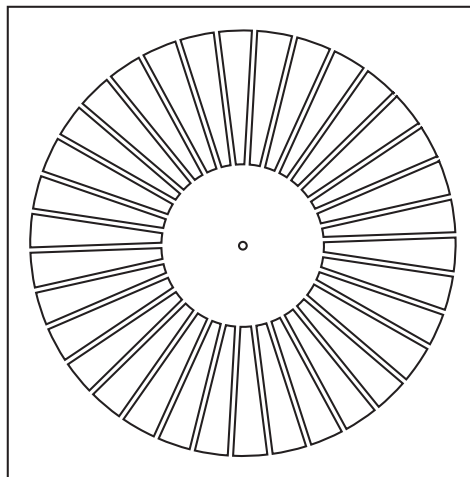
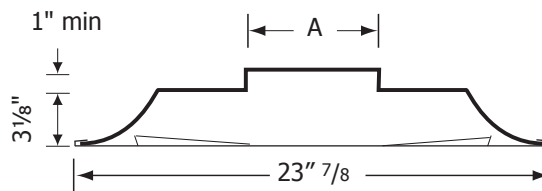
Material | Powder coated stamped heavy gauge steel

Air Pattern | Fix horizontal swirl pattern

Ceiling Types | False



TWIST



Select Model		
✓	Model	A
	TWIST 2406	5" 7/8
	TWIST 2408	7" 7/8
	TWIST 2410	9" 7/8
	TWIST 2412	11" 7/8

Select Options	
<input type="checkbox"/>	R6 Thermal Insulation

Select Finish	
<input type="checkbox"/>	Powder Coated White RAL9016
<input type="checkbox"/>	Other RAL:

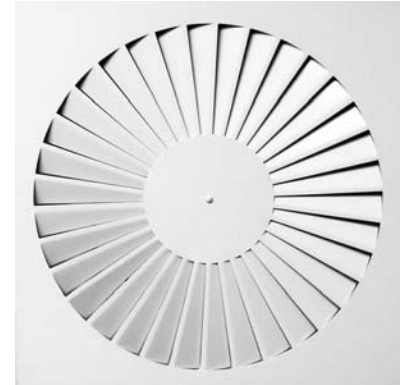
Project:	
Engineer:	
Architect:	
Contractor:	

TWIST-ALU Series Stamped Aluminum Swirl Diffuser With Integral Plenum

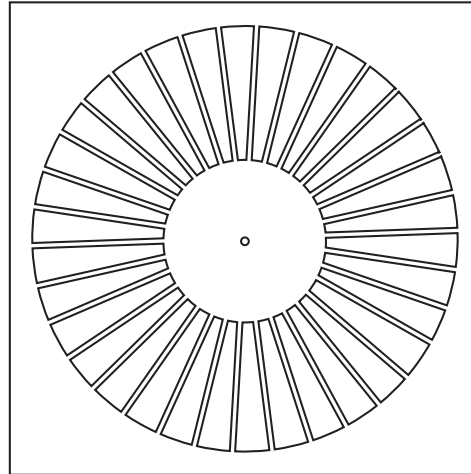
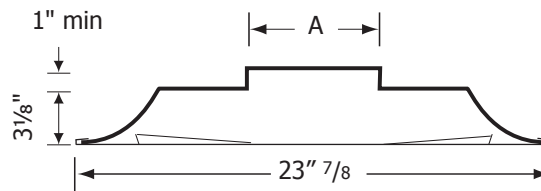
Material | Powder coated stamped heavy gauge aluminum

Air Pattern | Fix horizontal swirl pattern

Ceiling Types | False



TWIST-ALU



Select Model		
✓	Model	A
	TWIST-ALU 2406	5" 7/8
	TWIST-ALU 2408	7" 7/8
	TWIST-ALU 2410	9" 7/8
	TWIST-ALU 2412	11" 7/8

Select Options	
<input type="checkbox"/>	R6 Thermal Insulation

Select Finish	
<input type="checkbox"/>	Powder Coated White RAL9016
<input type="checkbox"/>	Other RAL:

Project:
Engineer:
Architect:
Contractor:

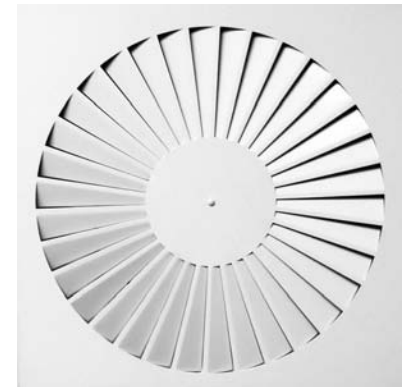
TWIST-CUT Series

Stamped Swirl Diffusers, Pre-Scored Insulated Back

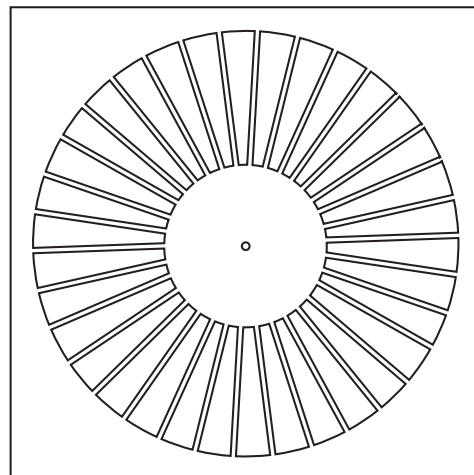
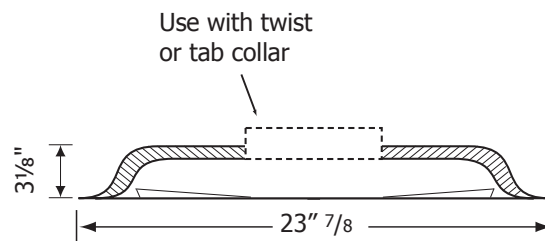
Material | Powder coated stamped heavy gauge steel face with pre-scored molded fiberglass back.

Air Pattern | Fix swirl pattern.

Ceiling Types | False.



TWIST-CUT



Select Model	
✓	TWIST-CUT 24

Select Finish	
	Powder Coated White RAL9016
	Other RAL:

Project:
Engineer:
Architect:
Contractor:

YIN Series Architectural Ceiling Return

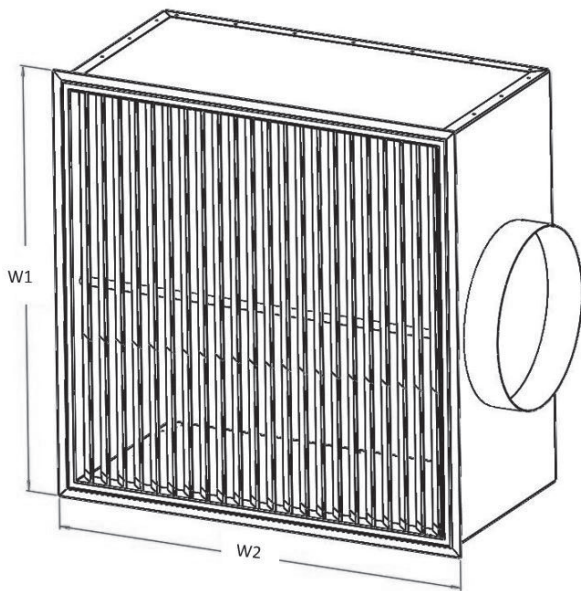
Material | Powder coated galvanized steel plenum and aluminum face

Face | Removable hinged face with magnetic lock, 45 degree louvers

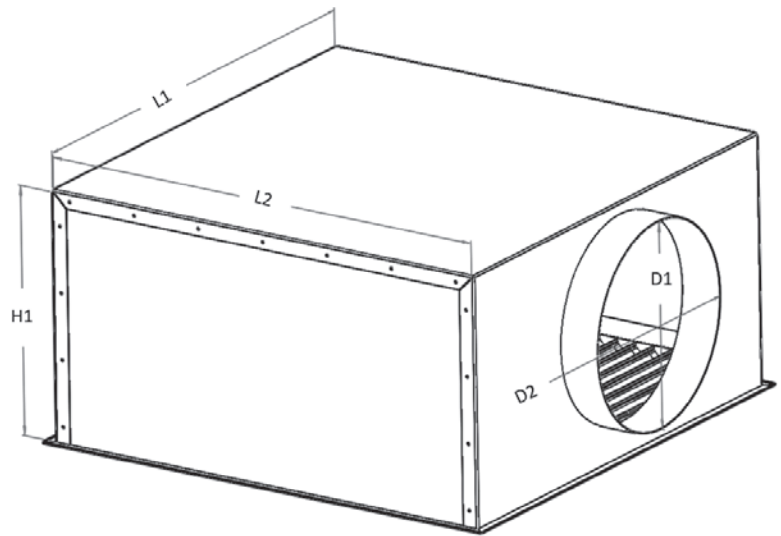
Ceiling Types | All



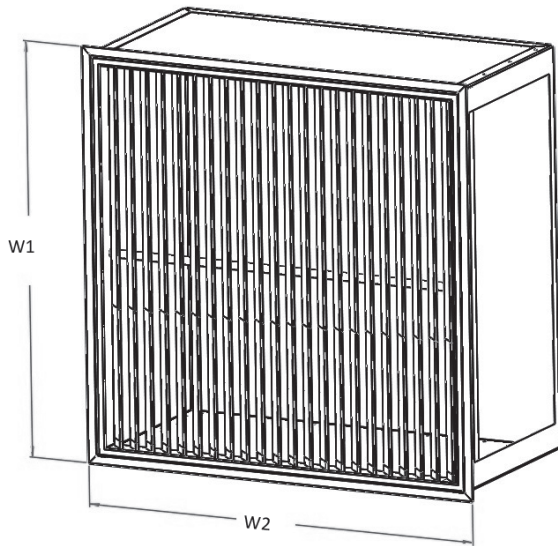
YIN



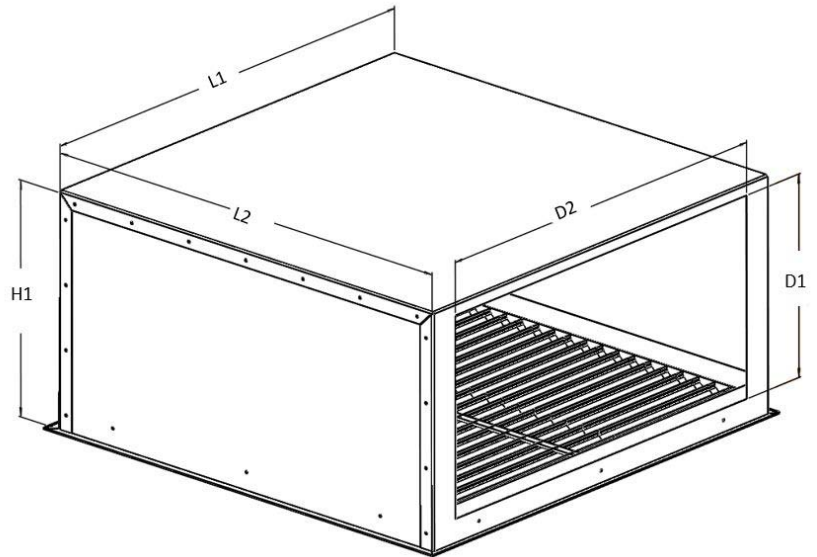
YIN 2410



Select Model								
✓	Model	W1	W2	L1	L2	H1	D1	D2
	YIN 2410	23" 7/8	23" 7/8	22" 7/8	22" 15/16	11" 7/8	9" 7/8	9" 7/8
	YIN 2412	23" 7/8	23" 7/8	22" 7/8	22" 15/16	11" 7/8	7" 7/8	15" 7/8
	YIN 2416	23" 7/8	23" 7/8	22" 7/8	22" 15/16	11" 7/8	9" 7/8	21" 7/8



YIN 2400



Select Model

✓	Model	W1	W2	L1	L2	H1	D1	D2
	YIN 2400*	23" 7/8	23" 7/8	22" 7/8	22" 15/16	11" 7/8	10" ⁽¹⁾	20" ⁽¹⁾

*YIN 2400 for non ducted ceiling plenum applications has no collar and a rectangular opening

Select Options

<input type="checkbox"/>	R6 Thermal Insulation
--------------------------	-----------------------

Select Interior Finish

<input type="checkbox"/>	Powder Coated White RAL9016
<input type="checkbox"/>	Other RAL:

Select Face Finish

<input type="checkbox"/>	Powder Coated White RAL9016
<input type="checkbox"/>	Other RAL:

Project:

Engineer:

Architect:

Contractor:

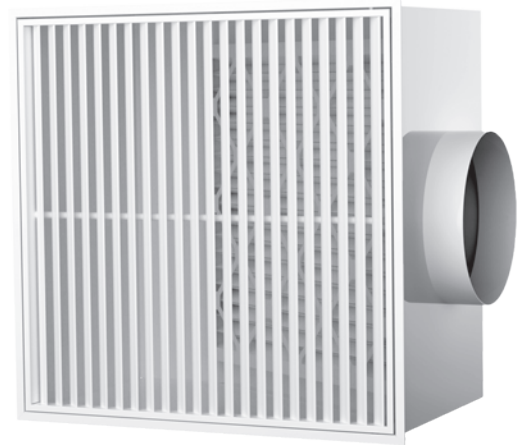
FLYIN Series Architectural Filter Ceiling Return

Material | Powder coated galvanized steel plenum and aluminum face

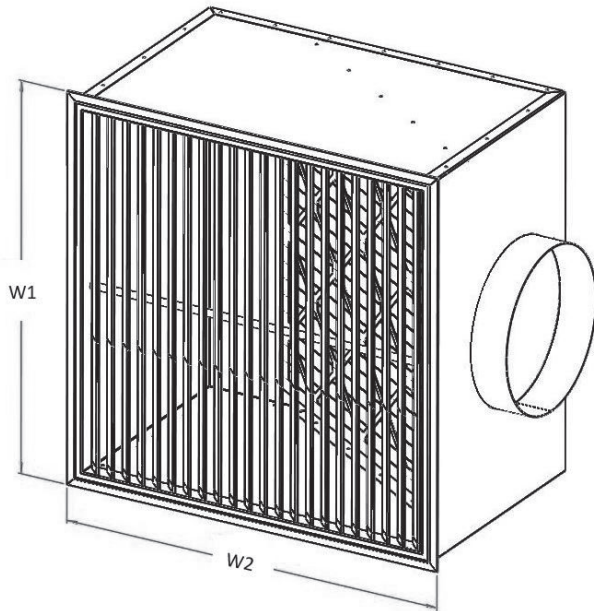
Face | Removable hinged face with magnetic lock, 45 degree louvers

Filter | 20" x 20" x 2" MERV-9 Filter included

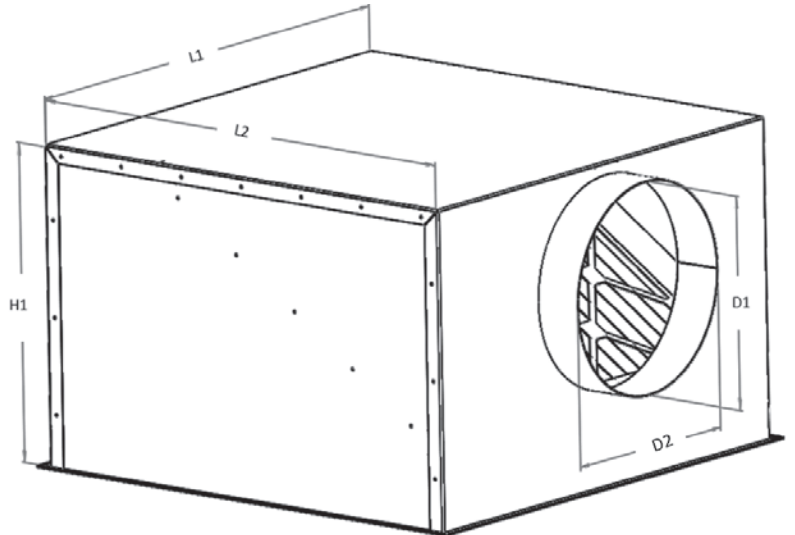
Ceiling Types | All



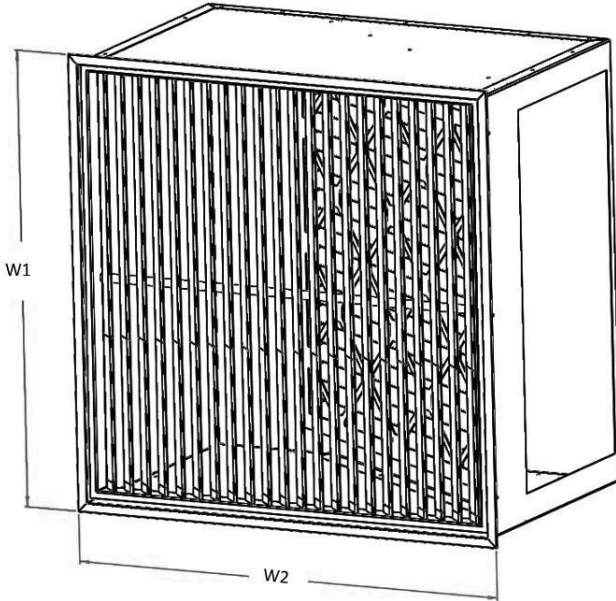
FLYIN



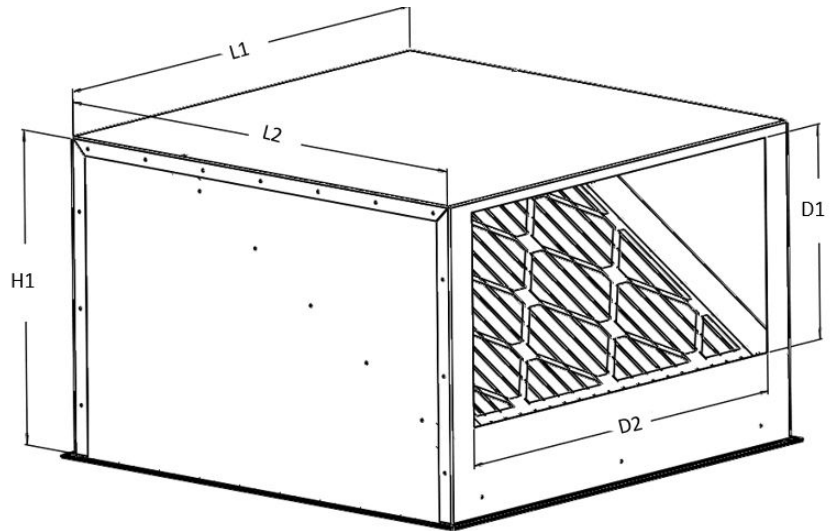
FLYIN 2410



Select Model								
✓	Model	W1	W2	L1	L2	H1	D1	D2
	FLYIN 2410	23" 7/8	23" 7/8	22" 7/8	22" 15/16	14" 7/8	9" 7/8	9" 7/8
	FLYIN 2412	23" 7/8	23" 7/8	22" 7/8	22" 15/16	14" 7/8	7" 7/8	15" 7/8
	FLYIN 2416	23" 7/8	23" 7/8	22" 7/8	22" 15/16	14" 7/8	9" 7/8	21" 7/8



FLYIN 2400



Select Model								
✓	Model	W1	W2	L1	L2	H1	D1	D2
	FLYIN 2400*	23" 7/8	23" 7/8	22" 7/8	22" 15/16	14" 7/8	10" ⁽¹⁾	20" ⁽¹⁾

*FLYIN 2400 for non ducted ceiling plenum applications has no collar and a rectangular opening

Select Options

R6 Thermal Insulation

Select Interior Finish

Powder Coated White RAL9016

Other RAL:

Select Face Finish

Powder Coated White RAL9016

Other RAL:

Project:

Engineer:

Architect:

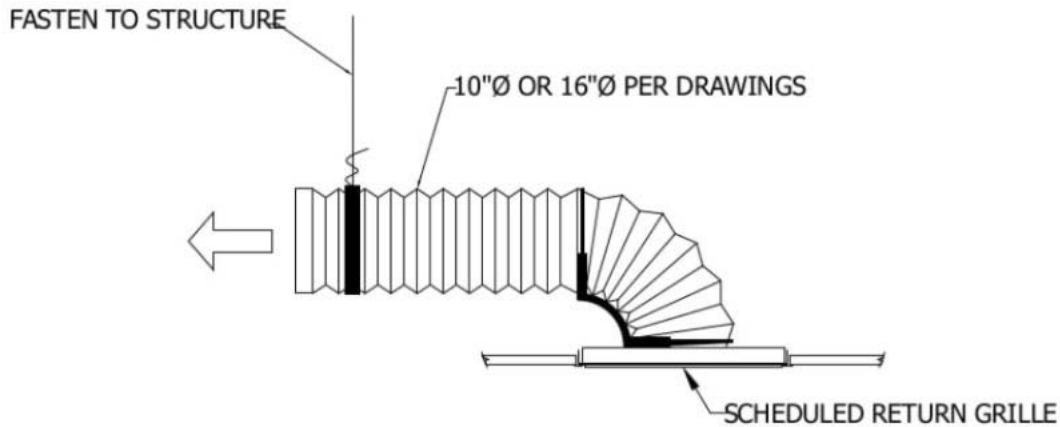
Contractor:

FLEXABOOT Series

Flexible Acoustical Sound Boot for Return Air Grilles



FLEXABOOT



NOTE: INSTALL FLEXABOOT ACOUSTICAL RETURN AIR BOOT ASSEMBLIES ON ALL RETURN GRILLES AS INDICATED ON DRAWINGS.

 **RETURN AIR BOOT DETAIL**
NOT TO SCALE

Select Model			
✓	Model	Dia	Length
	FLEXABOOT 10	10"	72"
	FLEXABOOT 16	16"	72"

Project:
Engineer:
Architect:
Contractor:

FLEXRIGHT Series

Flexible Duct 90 Degree Angle Support Brace



FLEXRIGHT

Select Model

✓	Model	Dia
	FLEXRIGHT	4"-16"

Project:

Engineer:

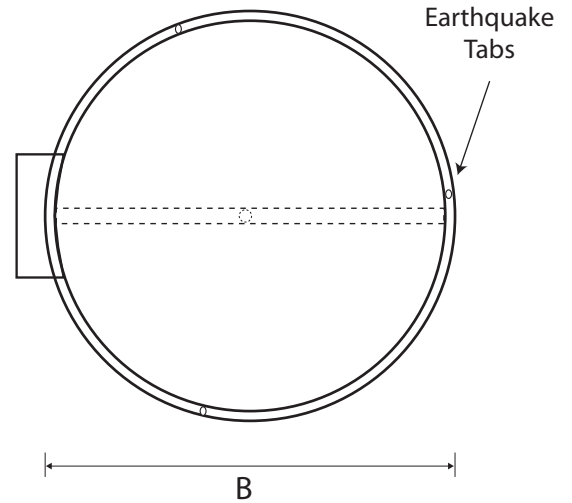
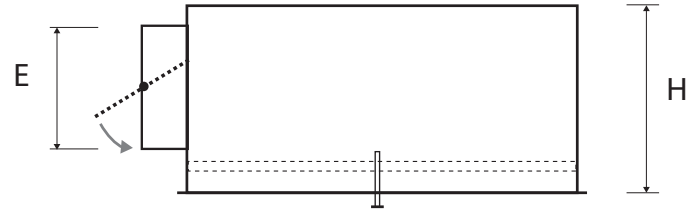
Architect:

Contractor:

PERFAIR-CS Series High Performance Plenum for Round Diffusers Cylindrical, Side Connection

Material | heavy gauge galvanized steel

Matching Faces | AXO-C, AXO-CY, NEX-C, OTO-C,
PLAY-C, RXO-C



Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CS 1205	5	11 3/8	4 7/8	9
	PERFAIR-CS 1206	6	11 3/8	5 7/8	9
	PERFAIR-CS 1208	8	11 3/8	7 7/8	9
	PERFAIR-CS 1606	6	15 1/4	5 7/8	10
	PERFAIR-CS 1608	8	15 1/4	7 7/8	10
	PERFAIR-CS 2006	6	19	5 7/8	12
	PERFAIR-CS 2008	8	19	7 7/8	12
	PERFAIR-CS 2010	10	19	9 7/8	12
	PERFAIR-CS 2506	6	24	5 7/8	13
	PERFAIR-CS 2508	8	24	7 7/8	13
	PERFAIR-CS 2510	10	24	9 7/8	13
	PERFAIR-CS 2512	12	24	11 7/8	13
	PERFAIR-CS 3312	12	33	11 7/8	16

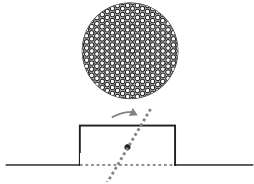
All dimensions in inches

Select Model - Metric					
✓	Model	Duct Size	B	E	H
	PERFAIR-CS 300 125	125	295	123	225
	PERFAIR-CS 300 150	150	295	148	225
	PERFAIR-CS 300 200	200	295	198	225
	PERFAIR-CS 400 150	150	395	148	250
	PERFAIR-CS 400 200	200	395	198	250
	PERFAIR-CS 500 150	150	495	148	300
	PERFAIR-CS 500 200	200	495	198	300
	PERFAIR-CS 500 250	250	495	248	300
	PERFAIR-CS 625 150	150	620	148	350
	PERFAIR-CS 625 200	200	620	198	350
	PERFAIR-CS 625 250	250	620	248	350
	PERFAIR-CS 625 300	300	620	298	350
	PERFAIR-CS 825 300	300	820	298	415

All dimensions in mm

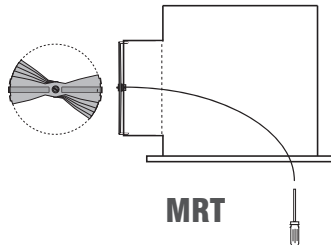


Integrated Air Volume Dampers



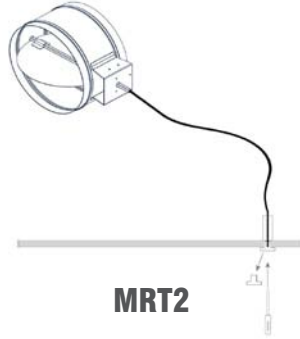
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



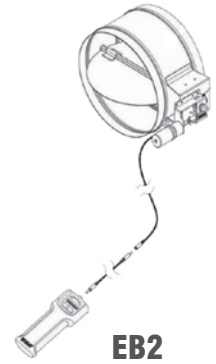
MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)	

Project:

Engineer:

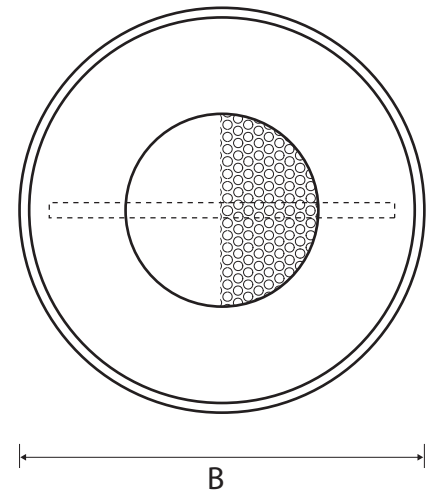
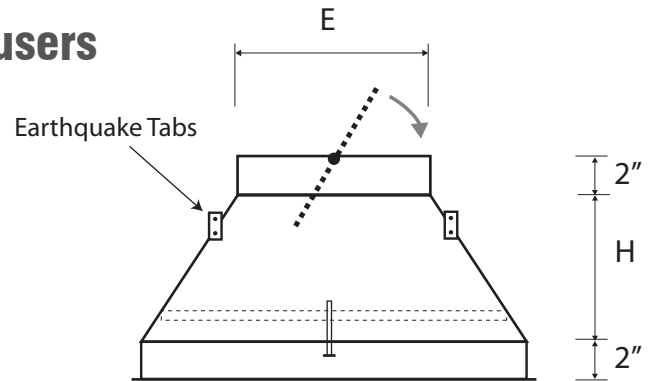
Architect:

Contractor:

PERFAIR-CT Series High Performance Plenum for Round Diffusers Conical, Top Connection

Material | heavy gauge galvanized steel.

Matching Faces | AXO-C, AXO-CY, NEX-C,
OTO-C, PLAY-C, RXO-C



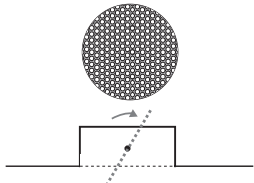
Select Model - Imperial					
✓	Model	Duct Size	B	E	H
	PERFAIR-CT 1205	5	11 3/8	4 7/8	6
	PERFAIR-CT 1206	6	11 3/8	5 7/8	6
	PERFAIR-CT 1208	8	11 3/8	7 7/8	6
	PERFAIR-CT 1606	6	15 1/4	5 7/8	6
	PERFAIR-CT 1608	8	15 1/4	7 7/8	6
	PERFAIR-CT 2006	6	19	5 7/8	8
	PERFAIR-CT 2008	8	19	7 7/8	8
	PERFAIR-CT 2010	10	19	9 7/8	8
	PERFAIR-CT 2506	6	24	5 7/8	8
	PERFAIR-CT 2508	8	24	7 7/8	8
	PERFAIR-CT 2510	10	24	9 7/8	8
	PERFAIR-CT 2512	12	24	11 7/8	8
	PERFAIR-CT 3312	12	33	11 7/8	12

All dimensions in inches

Select Model - Metric					
✓	Model	Duct Size	B	E	H
	PERFAIR-CT 300 125	125	295	123	152
	PERFAIR-CT 300 150	150	295	148	152
	PERFAIR-CT 300 200	200	295	198	152
	PERFAIR-CT 400 150	150	395	148	152
	PERFAIR-CT 400 200	200	395	198	152
	PERFAIR-CT 500 150	150	495	148	203
	PERFAIR-CT 500 200	200	495	198	203
	PERFAIR-CT 500 250	250	495	248	203
	PERFAIR-CT 625 150	150	620	148	203
	PERFAIR-CT 625 200	200	620	198	203
	PERFAIR-CT 625 250	250	620	248	203
	PERFAIR-CT 625 300	300	620	298	203
	PERFAIR-CT 825 300	300	820	298	305

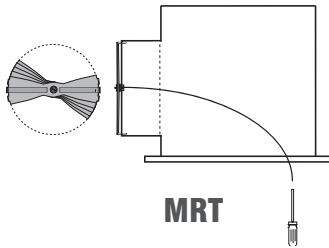
All dimensions in mm

Integrated Air Volume Dampers



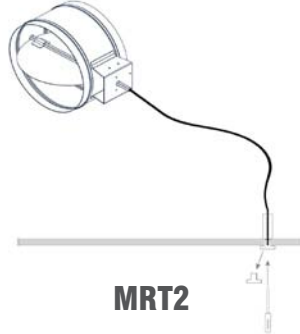
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



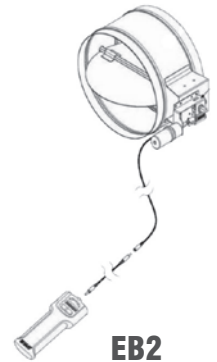
MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation	
R6	2" Exterior R6 Thermal Insulation
Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture
Cable Length (MRT2 or EB2)	

Project:

Engineer:

Architect:

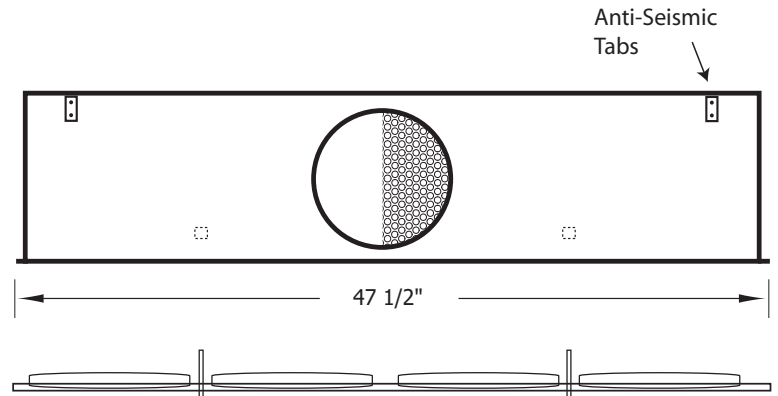
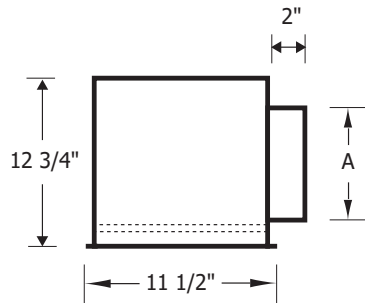
Contractor:

PERFAIR-RS Series

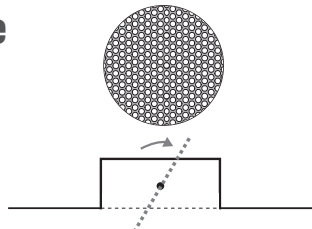
High Performance Plenum for Rectangular Diffusers, Side Connection

Material | heavy gauge galvanized steel

Matching Faces | PLAY-R

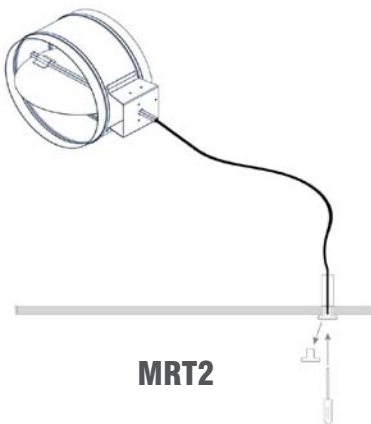


Integrated Air Volume Dampers



Standard

Perforated damper + air equalizer



MRT2

Manually operated damper, cable outside the plenum and thru drywall with termination fixture



EB2

Battery operated electro-balance damper with remote control, cable through drywall with termination fixture

Select Model			
✓	Model	Duct Size	A
	PERFAIR-RS 4812 06	6	5 7/8
	PERFAIR-RS 4812 08	8	7 7/8
	PERFAIR-RS 4812 10	10	9 7/8
	PERFAIR-RS 4812 12	12	11 7/8

All dimensions in inches

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT2	Manually operated, termination fixture
EB2	Electro-balanced, battery powered

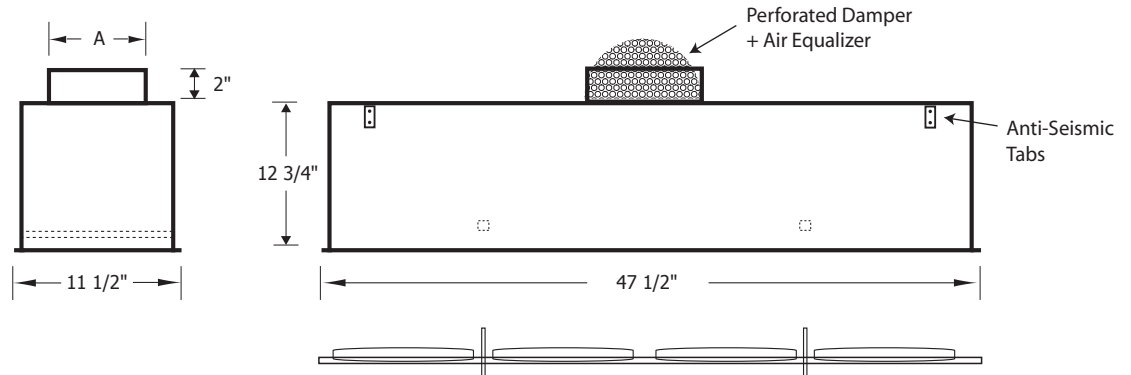
Cable Length (MRT2 or EB2)	

Project:
Engineer:
Architect:
Contractor:

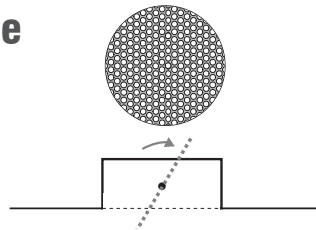
PERFAIR-RT Series High Performance Plenum for Rectangular Diffusers, Top Connection

Material | heavy gauge galvanized steel

Matching Faces | PLAY-R



Integrated Air Volume Dampers



Standard

Perforated damper + air equalizer

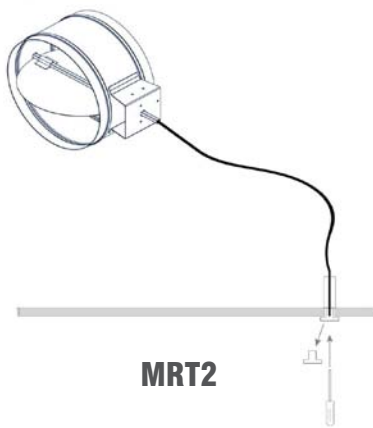
Select Model			
✓	Model	Duct Size	A
	PERFAIR-RT 4812 06	6	5 7/8
	PERFAIR-RT 4812 08	8	7 7/8
	PERFAIR-RT 4812 10	10	9 7/8

All dimensions in inches

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

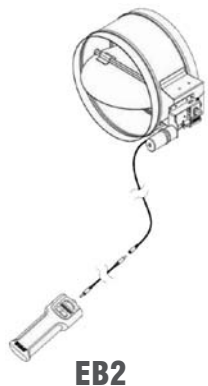
Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT2	Manually operated, termination fixture
EB2	Electro-balanced, battery powered

Cable Length (MRT2 or EB2)	



MRT2

Manually operated damper, cable outside the plenum and thru drywall with termination fixture



EB2

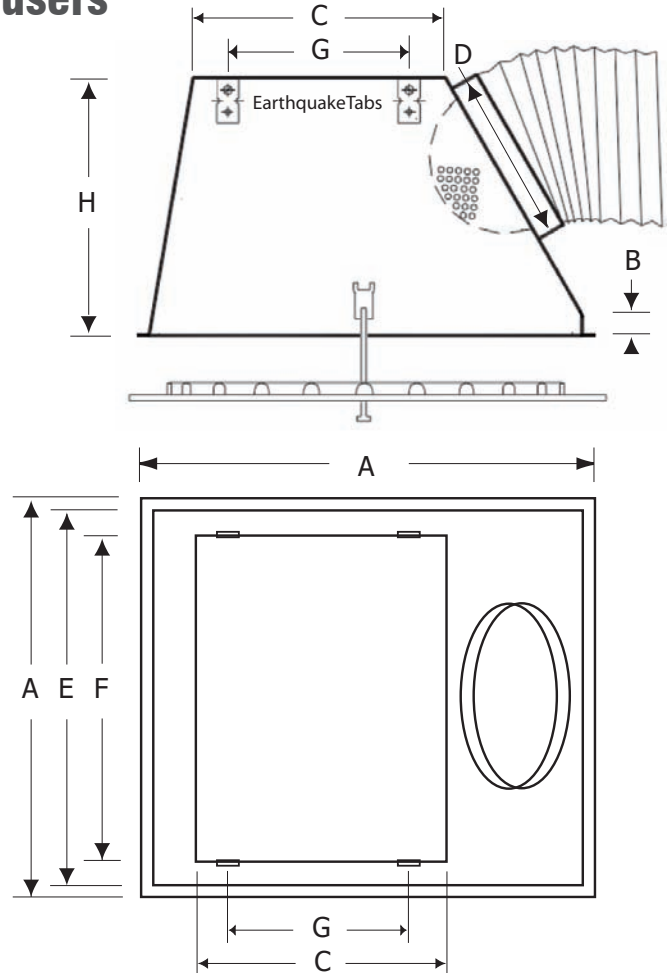
Battery operated electro-balance damper with remote control, cable through drywall with termination fixture

Project:
Engineer:
Architect:
Contractor:

PERFAIR-SS Series High Performance Plenum for Square Diffusers Trapezoidal, Side Connection

Material | heavy gauge galvanized steel

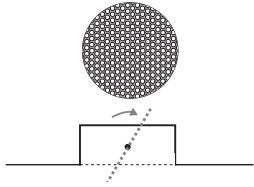
Matching Faces | AXO-S, AXO-S300, AXO-S400, AXO-SX, AXO-SY, NEX-S, OTO-S, PLAY-S, RXO-S



Select Model										
✓	Model	Duct Size	A	B	C	D	E	F	G	H
	PERFAIR-SS 1205	5	11 1/2	1	5 3/4	4 7/8	11 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1206	6	11 1/2	1	5 3/4	5 7/8	11 3/4	10 1/2	6 5/8	9 27/32
	PERFAIR-SS 1208	8	11 1/2	1	5 3/4	7 7/8	11 3/4	10 1/2	6 5/8	12
	PERFAIR-SS 1608	8	15 3/8	1	7 1/2	7 7/8	14 5/8	13 5/8	8 5/8	12
	PERFAIR-SS 2010	10	19 1/4	1	8 1/2	9 7/8	18 5/8	17 5/8	8 5/8	12
	PERFAIR-SS 2405	5	23 1/2	1	10 1/2	4 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2406	6	23 1/2	1	10 1/2	5 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2408	8	23 1/2	1	10 1/2	7 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2410	10	23 1/2	1	10 1/2	9 7/8	22 5/8	21 5/8	8 5/8	13 25/32
	PERFAIR-SS 2412	12	23 1/2	1	10 1/2	11 7/8	22 5/8	21 5/8	8 5/8	13 25/32

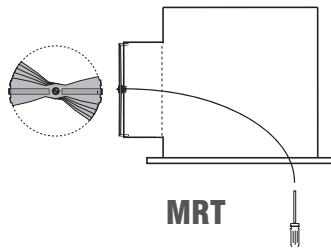
All dimensions in inches

Integrated Air Volume Dampers



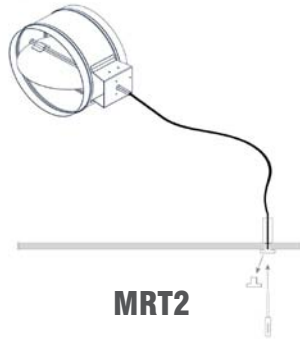
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



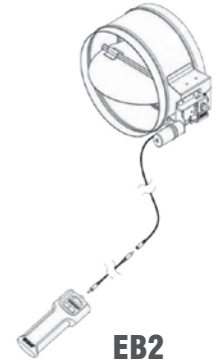
MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
ALC	1/2" Interior Closed Cell Accoustical Liner
ALC2	1" Interior Closed Cell Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture

Cable Length (MRT2 or EB2)	

Project:

Engineer:

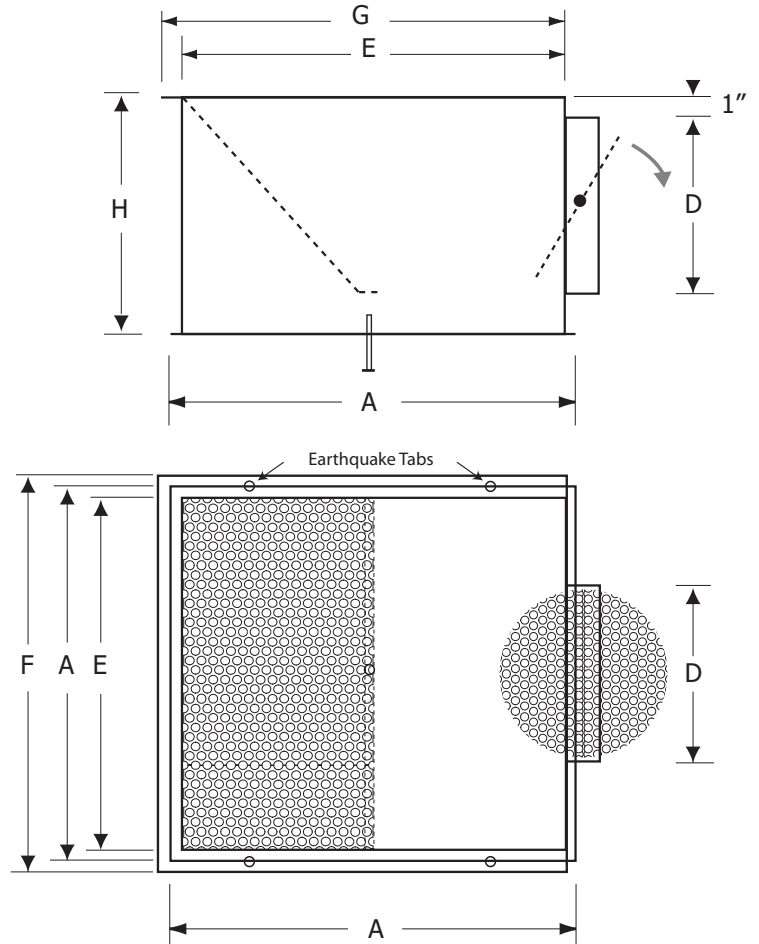
Architect:

Contractor:

PERFAIR-SSS Series High Performance Plenum for Square Diffusers Side Connection, Straight

Material | heavy gauge galvanized steel

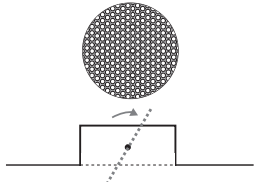
Matching Faces | AXO-S, AXO-S300, AXO-S400,
AXO-SX, AXO-SY, NEX-S, OTO-S, PLAY-S, RXO-S



Select Model								
✓	Model	Duct Size	A	D	E	F	G	H
	PERFAIR-SSS 1205	5	11 1/2	4 7/8	11 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1206	6	11 1/2	5 7/8	11 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1208	8	11 1/2	7 7/8	11 3/4	13 3/4	12 3/4	10
	PERFAIR-SSS 1608	8	15 3/8	7 7/8	14 5/8	16 5/8	15 5/8	12
	PERFAIR-SSS 2010	10	19 1/4	9 7/8	18 5/8	21 5/8	19 5/8	14
	PERFAIR-SSS 2405	5	23 1/2	4 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2406	6	23 1/2	5 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2408	8	23 1/2	7 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2410	10	23 1/2	9 7/8	22 5/8	24 5/8	23 5/8	14
	PERFAIR-SSS 2412	12	23 1/2	11 7/8	22 5/8	24 5/8	23 5/8	14

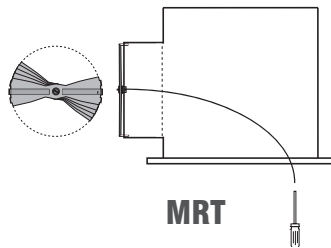
All dimensions in inches

Integrated Air Volume Dampers



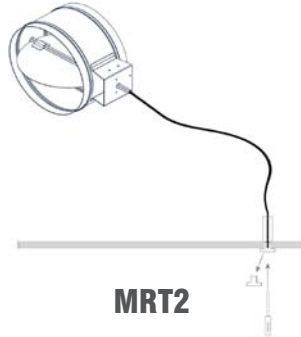
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



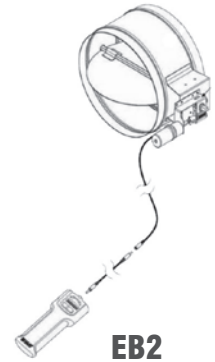
MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture

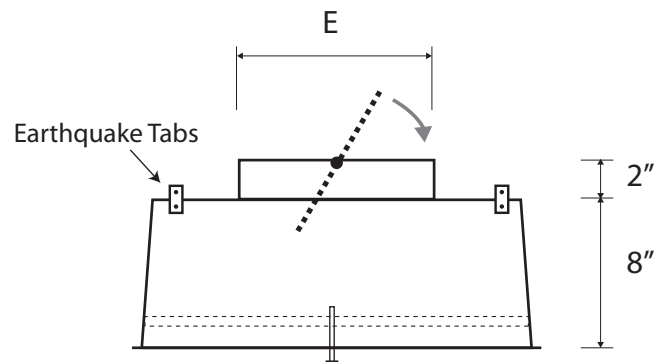
Cable Length (MRT2 or EB2)	

Project:
Engineer:
Architect:
Contractor:

PERFAIR-ST Series High Performance Plenum for Square Diffusers Top Connection

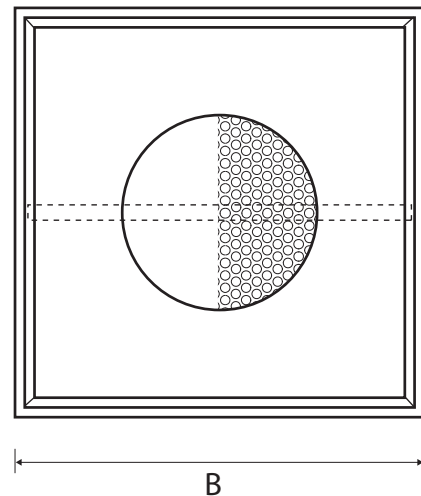
Material | heavy gauge galvanized steel

Matching Faces | AXO-S, AXO-S300, AXO-S400, AXO-SX, AXO-SY, NEX-S, OTO-S, PLAY-S, RXO-S

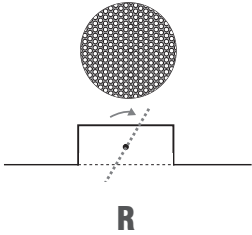


Select Model				
✓	Model	Duct Size	B	E
	PERFAIR-ST 1206	6	11 1/2	5 7/8
	PERFAIR-ST 1208	8	11 1/2	7 7/8
	PERFAIR-ST 2406	6	23 1/2	5 7/8
	PERFAIR-ST 2408	8	23 1/2	7 7/8
	PERFAIR-ST 2410	10	23 1/2	9 7/8
	PERFAIR-ST 2412	12	23 1/2	11 7/8

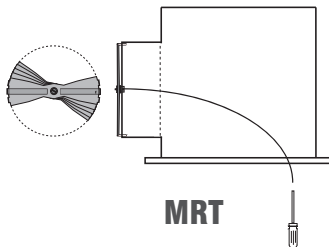
All dimensions in inches



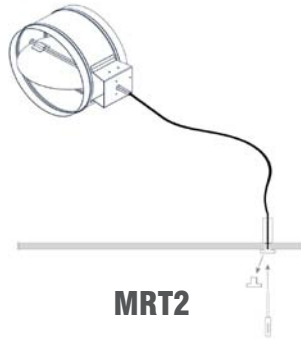
Integrated Air Volume Dampers



R
Perforated damper +
air equalizer



MRT
Manually operated damper,
cable inside the plenum,
adjustment through face



MRT2
Manually operated damper,
cable through drywall with
termination fixture



EB
Battery operated
electro-balance damper
with remote control,
cable through face



EB2
Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation
Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture
Cable Length (MRT2 or EB2)	

Project:

Engineer:

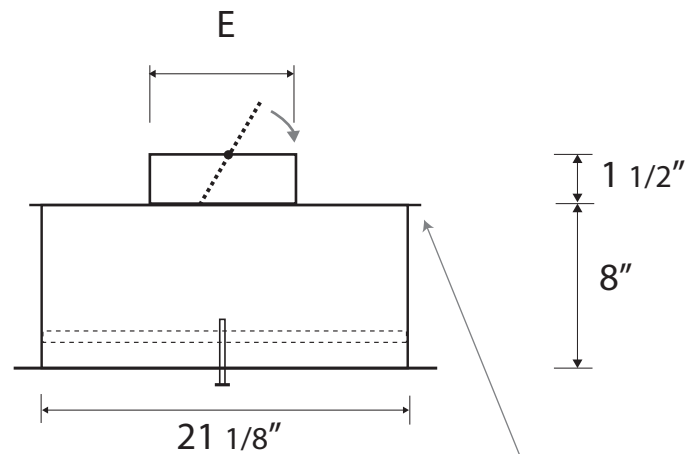
Architect:

Contractor:

PERFAIR-SCT Series High Performance Plenum for Square Diffusers Cylindrical Back With Top Connection

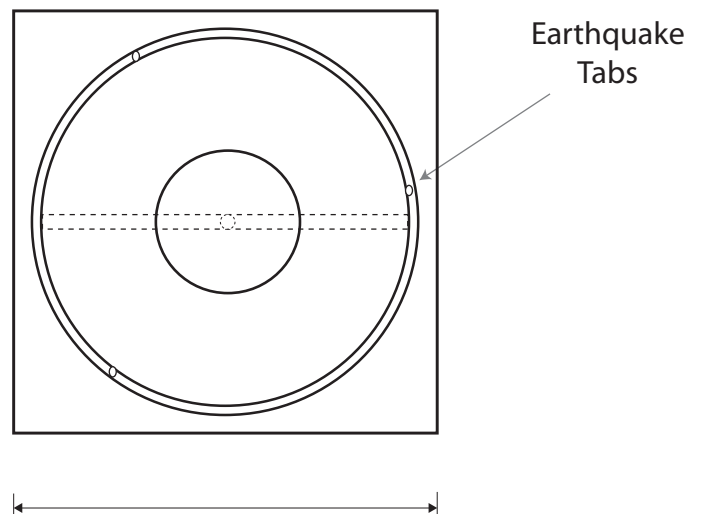
Material | heavy gauge galvanized steel

Matching Faces | AXO-S, AXO-S300, AXO-S400, AXO-SX, AXO-SY, NEX-S, OTO-S, PLAY-S, RXO-S

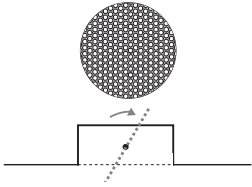


Select Model			
✓	Model	Duct Size	E
	PERFAIR-SCT 2406	6	5 7/8
	PERFAIR-SCT 2408	8	7 7/8
	PERFAIR-SCT 2410	10	9 7/8
	PERFAIR-SCT 2412	12	11 7/8
	PERFAIR-SCT 2414	14	13 7/8
	PERFAIR-SCT 2416	16	15 7/8

All dimensions in inches

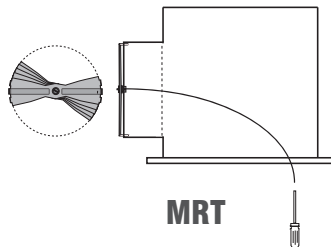


Integrated Air Volume Dampers



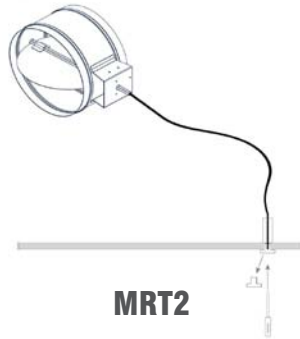
R

Perforated damper +
air equalizer



MRT

Manually operated damper,
cable inside the plenum,
adjustment through face



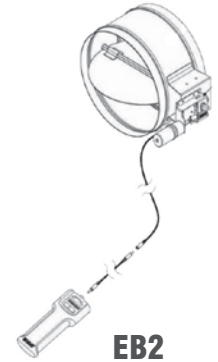
MRT2

Manually operated damper,
cable through drywall with
termination fixture



EB

Battery operated
electro-balance damper
with remote control,
cable through face



EB2

Battery operated
electro-balance damper
with remote control,
cable through drywall
with termination fixture

Insulation	
AL	1/2" Interior Accoustical Liner
AL1	1" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Neck-Installed Air Volume Damper	
R	Perforated air volume damper/equalizer
MRT	Manually operated, cable thru face
MRT2	Manually operated, termination fixture
EB	Electro-balanced, battery powered, cable thru face
EB2	Electro-balanced, battery powered, termination fixture

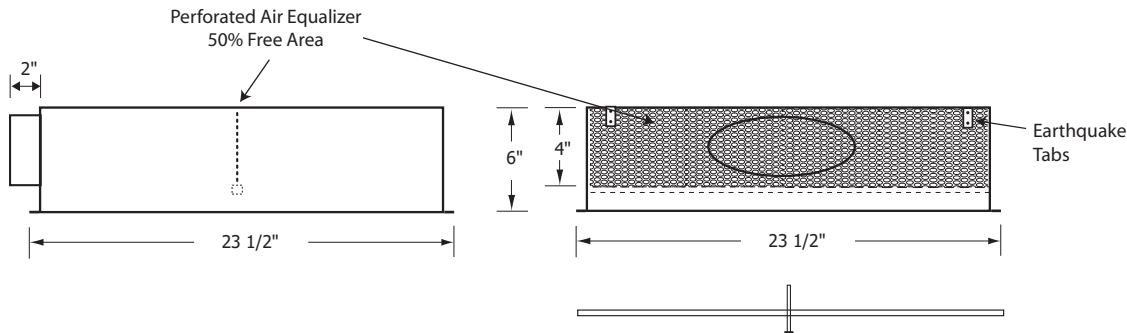
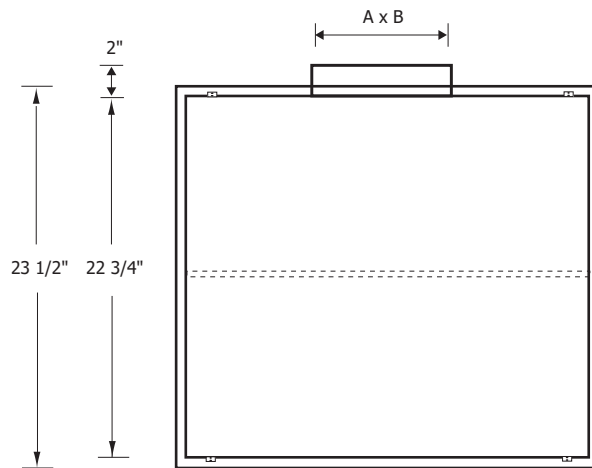
Cable Length (MRT2 or EB2)	

Project:
Engineer:
Architect:
Contractor:

PERFAIR-XS Series Extra Compact Plenum for Square Diffusers Side Oval Connection

Material | heavy gauge galvanized steel

Matching Faces | AXO-S, AXO-S300, AXO-S400, AXO-SX, AXO-SY,
NEX-S, OTO-S, PLAY-S, RXO-S



Select Model				
✓	Model	Duct Size	A	B
	PERFAIR-XS 2404	4	3 7/8	3 7/8
	PERFAIR-XS 2405	5	4 7/8	4 7/8
	PERFAIR-XS 2406	6	7 9/16	3 1/8
	PERFAIR-XS 2408	8	10 1/2	3 1/4

All dimensions in inches

Insulation	
R6	2" Exterior R6 Thermal Insulation

Project:

Engineer:

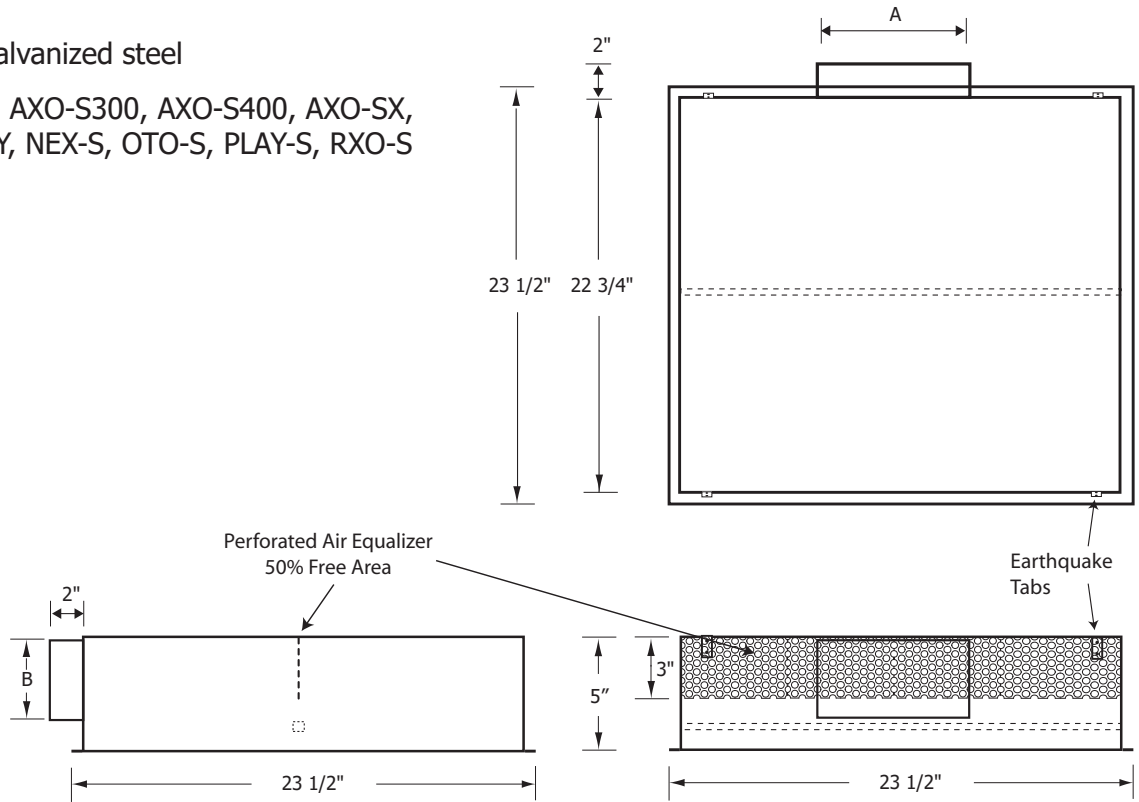
Architect:

Contractor:

PERFAIR-XSS Series Extra Compact Plenum for Square Diffusers Side Rectangular Connection

Material | heavy gauge galvanized steel

Matching Faces | AXO-S, AXO-S300, AXO-S400, AXO-SX,
AXO-SY, NEX-S, OTO-S, PLAY-S, RXO-S



Select Model				
✓	Model	Duct Size	A	B
	PERFAIR-XSS 8 4	8" x 4"	7 7/8"	3 7/8"
	PERFAIR-XSS 16 4	16" x 4"	15 7/8"	3 7/8"
	PERFAIR-XSS 200 100	200 x 100 mm	200 mm	100 mm
	PERFAIR-XSS 400 100	400 x 100 mm	400 mm	100 mm

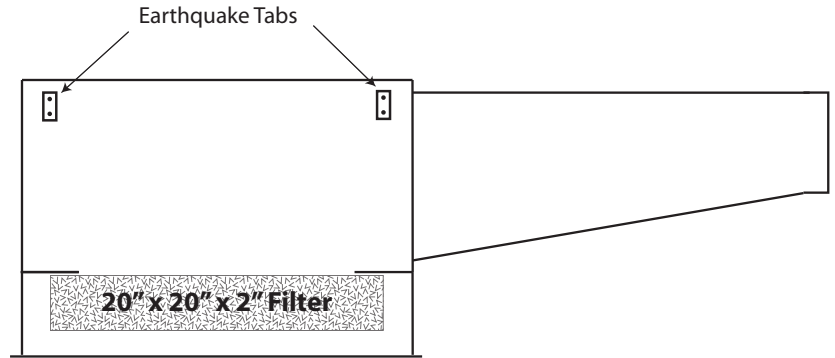
Insulation	
R6	2" Exterior R6 Thermal Insulation

Project:
Engineer:
Architect:
Contractor:

PFILT-SS Series Plenum With Filter Support for Square Diffusers With Hinged Face Side Connection

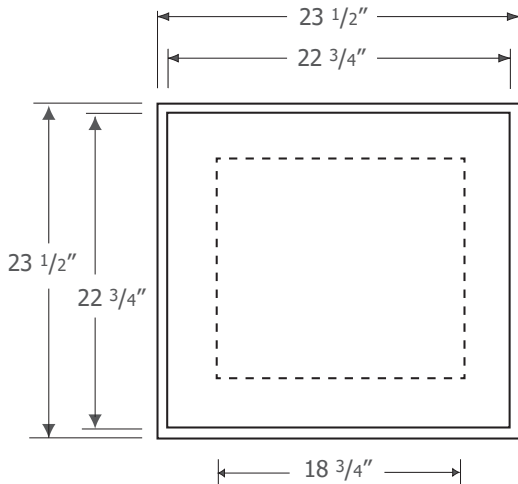
Material | heavy gauge galvanized steel

Select Model	
✓	PFILT-SS 24

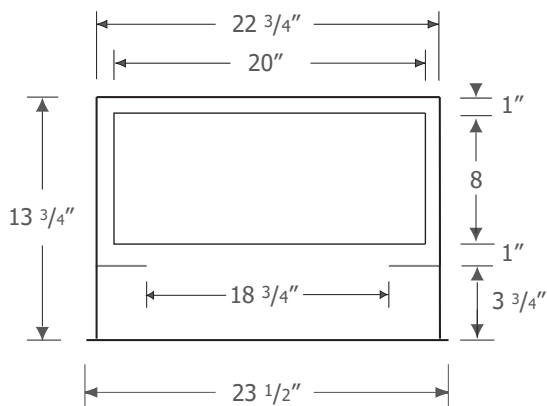


PFILT-SS + PFILTCOL

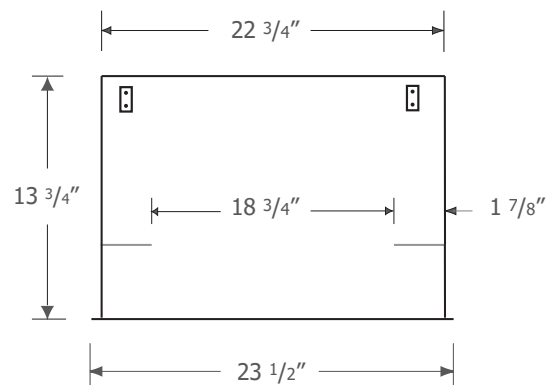
Top View



Front (Duct) View

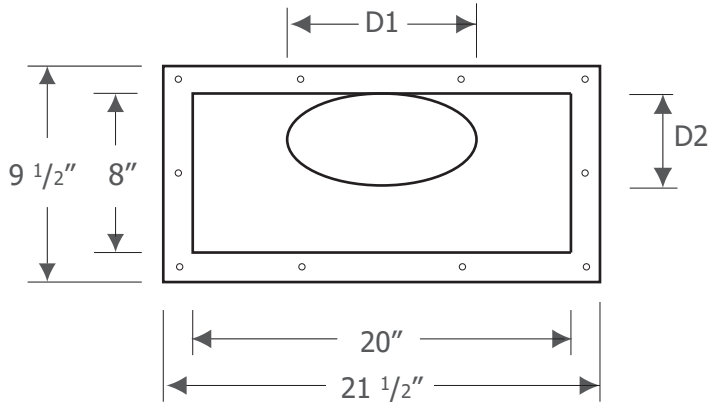


Side View

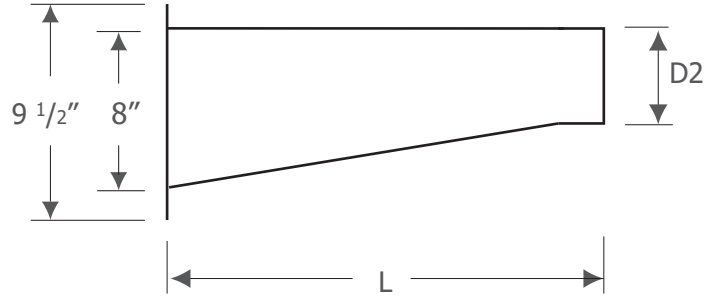


PFILTCOL

Face View



Side View



Select Collar					
✓	Model	Duct	D1	D2	L
	PFILTCOL 06	6	5 7/8	5 7/8	6
	PFILTCOL 07	7	6 7/8	6 7/8	6
	PFILTCOL 08	8	7 7/8	7 7/8	6
	PFILTCOL 09	9	9	8	6
	PFILTCOL 10	10	11	8	6
	PFILTCOL 12	12	16	8	6
	PFILTCOL-UV 06	6	5 7/8	5 7/8	24
	PFILTCOL-UV 07	7	6 7/8	6 7/8	24
	PFILTCOL-UV 08	8	7 7/8	7 7/8	24
	PFILTCOL-UV 09	9	9	8	24
	PFILTCOL-UV 10	10	11	8	24
	PFILTCOL-UV 12	12	16	8	24

All dimensions in inches

Project: Engineer: Architect: Contractor:
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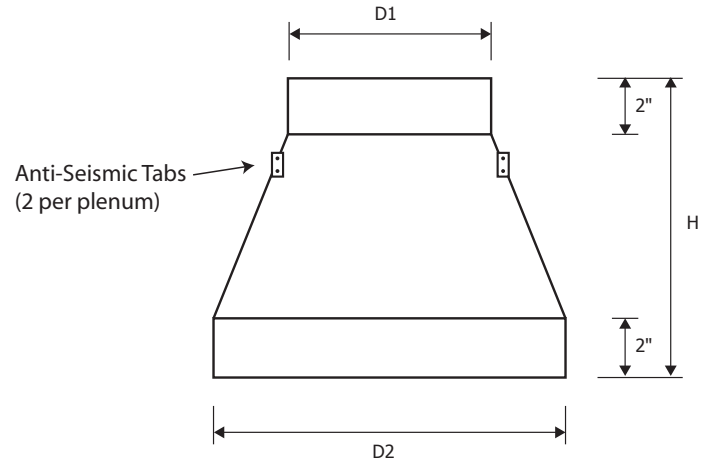
PLRR Series

High Performance Plenum, Round to Round Connection

Material | heavy gauge galvanized steel

Matching Products | AXP, DCG

Select Model					
✓	Model	Duct	D1	D2	H
	PLRR 0504	4	3 7/8	5	6
	PLRR 0505	5	4 7/8	5	6
	PLRR 0605	5	4 7/8	6 3/8	6
	PLRR 0606	6	5 7/8	6 3/8	6
	PLRR 0805	5	4 7/8	8	8
	PLRR 0806	6	5 7/8	8	8
	PLRR 0808	8	7 7/8	8	8
	PLRR 1006	6	5 7/8	10	8
	PLRR 1008	8	7 7/8	10	8
	PLRR 1010	10	9 7/8	10	8
	PLRR 1208	8	7 7/8	12 3/8	10
	PLRR 1210	10	9 7/8	12 3/8	10
	PLRR 1212	10	9 7/8	12 3/8	10



All dimensions in inches (in)

Options	
EQ	Air Equalizing Grid (Perforated Plate)
R	Perforated air volume damper/equalizer
MRT	Manually operated cable damper, cable thru face
MRT2	Manually operated cable damper, drywall fixture
EB	Electro-balanced cable damper, thru face
EB2	Electro-balanced cable damper, drywall fixture
R6	2" Exterior R6 Thermal Insulation

Cable Length (MRT2 or EB2)	

Select Finish	
	Mill Finish
	Other RAL:

Project:
Engineer:
Architect:
Contractor:

PLX6 Series Plenum with Side Connection for AX6 Round Swirl Diffusers

Material | heavy gauge galvanized steel

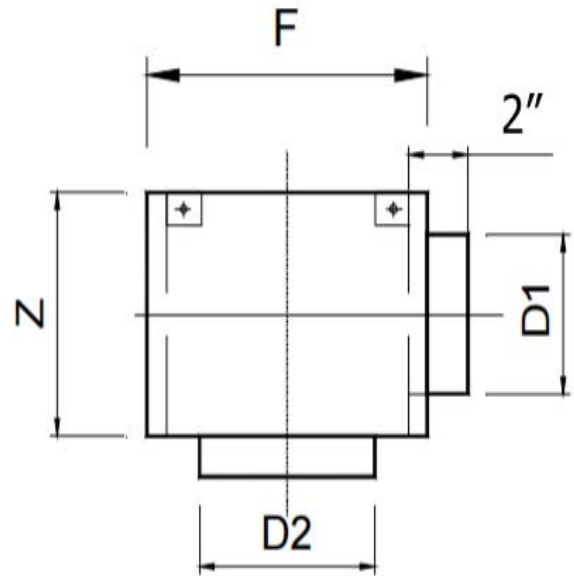
Matching Products | AX6

Select Model					
✓	Model	D2	F	Z	D1
	PLX6 10	9 9/16	12 19/32	12 1/8	9 7/8
	PLX6 12	12 1/8	15 5/32	14 11/16	11 7/8
	PLX6 16	15 19/32	19 11/16	17 23/32	15 7/8
	PLX6 20	19 3/8	23 5/8	19 11/16	17 7/8
	PLX6 25	24 31/64	28 47/64	21 31/32	19 7/8

All dimensions in inches (in)

Options	
S	Side duct connection
T	Top duct connection
R	Perforated air volume damper/equalizer
M	Access door for actuator
AL	1/2" interior acoustical liner
R6	2" exterior R6 thermal insulation

Select Finish	
	Mill Finish
	Powder Coated White RAL 9016
	Powder Coated (specify RAL) :



Project:

Engineer:

Architect:

Contractor:

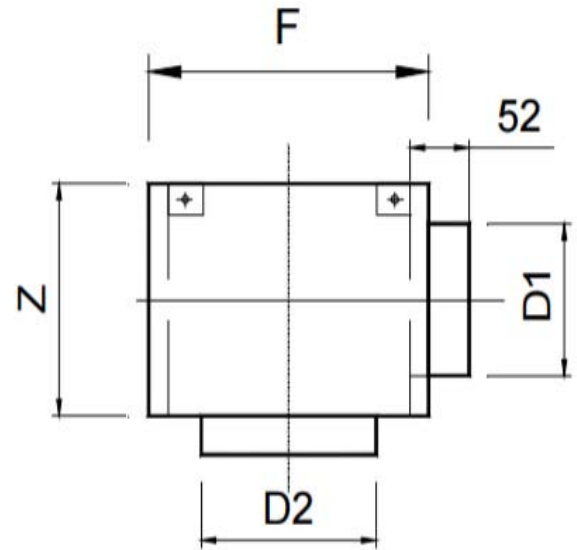
PLX6 Series Plenum with Side Connection for AX6 Round Swirl Diffusers

Material | heavy gauge galvanized steel

Matching Products | AX6

Select Model					
✓	Model	D2	F	Z	D1
	PLX6 250	243	320	308	248
	PLX6 315	308	385	373	313
	PLX6 400	396	500	450	398
	PLX6 500	492	600	500	448
	PLX6 630	622	730	558	498

All dimensions in millimeters (mm)



Options	
S	Side duct connection
T	Top duct connection
R	Perforated air volume damper/equalizer
M	Access door for actuator
AL	1/2" interior accoustical liner
R6	2" exterior R6 thermal insulation

Select Finish	
	Mill Finish
	Powder Coated White RAL 9016
	Powder Coated (specify RAL) :

<p>Project:</p> <p>Engineer:</p> <p>Architect:</p> <p>Contractor:</p>

PLXP Series

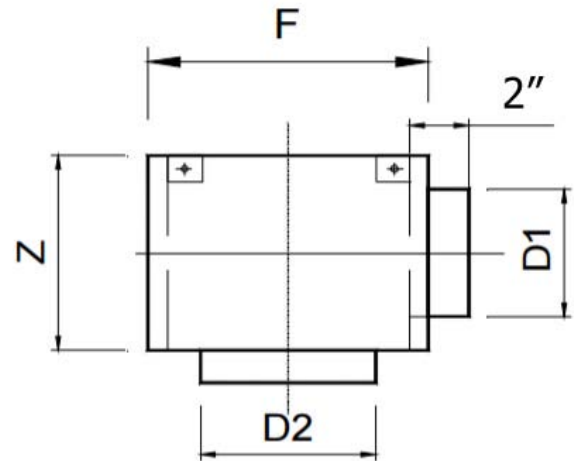
High Performance Plenum for Round Diffusers With Integral Neck

Material | heavy gauge galvanized steel

Matching Products | AXP, DCG

Select Model					
✓	Model	D2	F	Z	D1
	PLXP 05	5	8	6	3 7/8"
	PLXP 06	6 19/64"	10	7	4 7/8"
	PLXP 08	8	12	10	5 7/8"
	PLXP 10	10	15	11	7 7/8"
	PLXP 12	12 13/32"	19	14	9 7/8"

All dimensions in inches (in)



Options	
S	Top connection
R	Perforated air volume damper/equalizer
MRT	Manually operated cable damper, cable thru face
MRT2	Manually operated cable damper, drywal fixture
EB	Electro-balanced cable damper, thru face
EB2	Electro-balanced cable damper, drywal fixture
AL	1/2" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Cable Length (MRT2 or EB2)	

Select Finish	
	Mill Finish
	Powder Coated (specify RAL) :

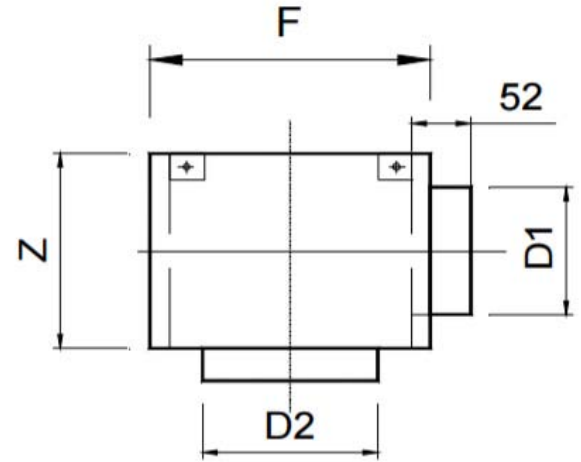
Project:
Engineer:
Architect:
Contractor:

PLXP Series

High Performance Plenum for Round Diffusers With Integral Neck

Material | heavy gauge galvanized steel

Matching Products | AXP, DCG



Select Model					
✓	Model	D2	F	Z	D1
	PLXP 125	125	200	150	98
	PLXP 160	160	250	175	123
	PLXP 200	200	300	220	148
	PLXP 250	250	380	270	198
	PLXP 315	315	480	335	248

All dimensions in millimeters (mm)

Options	
S	Top connection
R	Perforated air volume damper/equalizer
MRT	Manually operated cable damper, cable thru face
MRT2	Manually operated cable damper, drywal fixture
EB	Electro-balanced cable damper, thru face
EB2	Electro-balanced cable damper, drywal fixture
AL	1/2" Interior Accoustical Liner
R6	2" Exterior R6 Thermal Insulation

Cable Length (MRT2 or EB2)	

Select Finish	
	Mill Finish
	Powder Coated (specify RAL) :

<p>Project:</p> <p>Engineer:</p> <p>Architect:</p> <p>Contractor:</p>

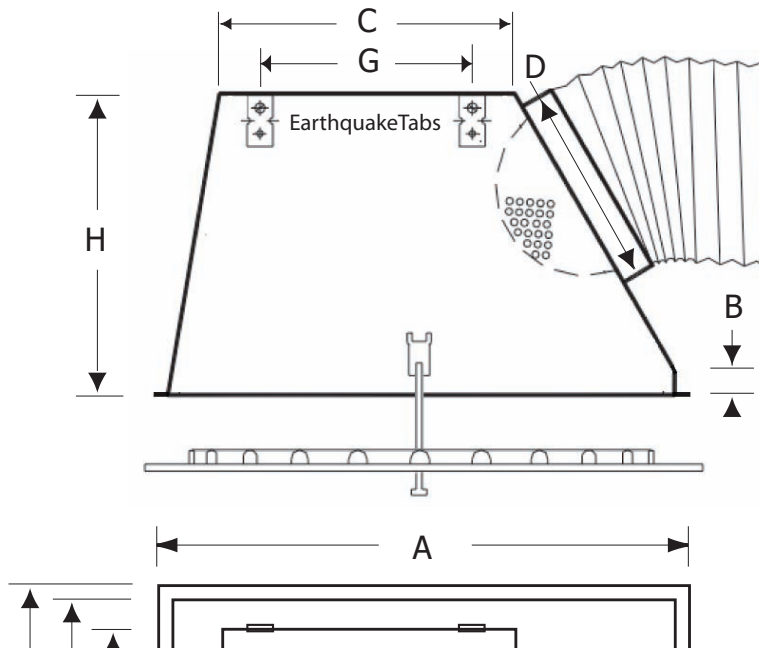
BOXSTAR Series

High Performance Plenum for Square Diffusers (by MADEL®)

Material | heavy gauge galvanized steel.

Accessories | BOXSTAR-R comes with air equalizer + volume damper built-in collar.

Matching Faces | AXO-S, AXO-SX, AXO-SY, AXO-S400, NEX-S, PLAY-S.



Select Model				
✓	Imperial	B	C	E
	BOXSTAR 24	23" 27/64	13" 25/32	9" 3/4
	BOXSTAR-R 12	11" 3/8	9" 27/32	4" 7/8
	BOXSTAR-R 24	23" 27/64	13" 25/32	9" 3/4

Select Model				
✓	Metric	B	C	E
	BOXSTAR 605	590 mm	350 mm	248 mm
	BOXSTAR-R 299	290 mm	250 mm	123 mm
	BOXSTAR-R 605	590 mm	350 mm	248 mm

Project:
Engineer:
Architect:
Contractor:

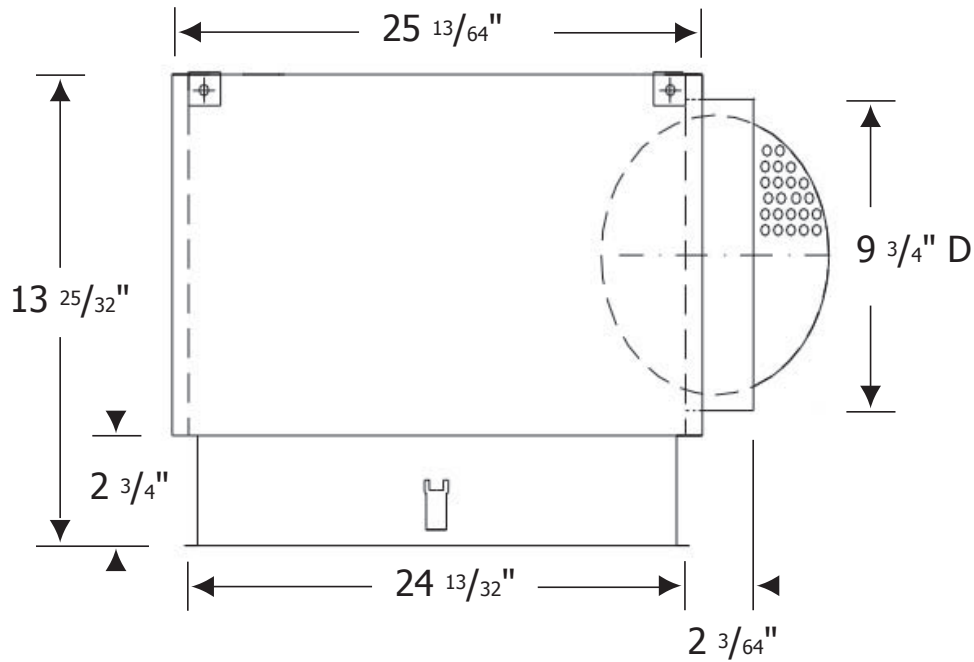
PLXOC Series

High Performance Plenum for Round Diffusers (by MADEL®)

Material | heavy gauge galvanized steel.

Accessories | PLXOC-R comes with air equalizer + volume damper built-in collar.

Matching Faces | AXO-C, AXO-CY, NEX-C, PLAY-C.



Select Model			
✓	Imperial	✓	Metric
	PLXOC-R 25		PLXOC-R 625

Project:
Engineer:
Architect:
Contractor:

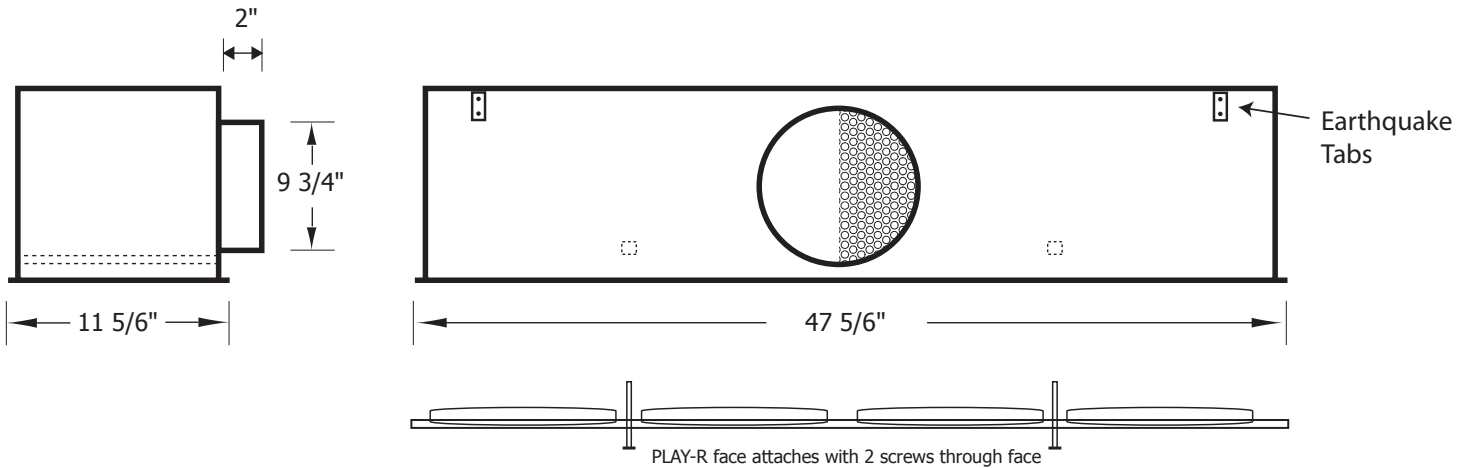
PLXOR Series

High Performance Plenum for Rectangular Diffusers (by MADEL®)

Material | heavy gauge galvanized steel.

Accessories | PLXOR-R comes with air equalizer + volume damper built-in collar.

Matching Faces | PLAY-R.



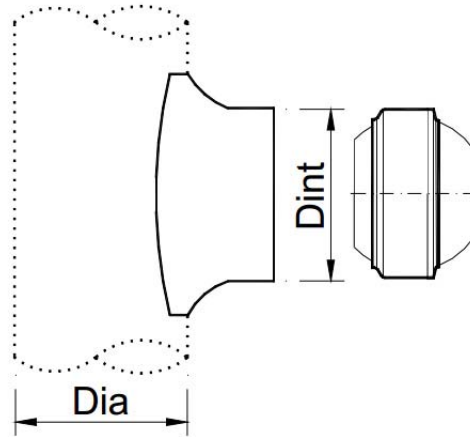
Select Model			
✓	Imperial	✓	Metric
	PLXOR-R 48 12		PLXOR-R 1215 300

Project:
Engineer:
Architect:
Contractor:

IEH Series

Round Duct Mounting Adaptor for DCG and KAM-D

Material | Galvanized Steel



Select Model			
✓	Model	Dint	Dia
	IEH 125	125	
	IEH 160	160	
	IEH 200	200	
	IEH 250	250	
	IEH 315	315	
	IEH 400	400	

All dimensions in millimeters (mm)

Select Finish	
	Powder Coated White RAL9016
	Powder Coated Metallic Grey RAL9006
	Other RAL:

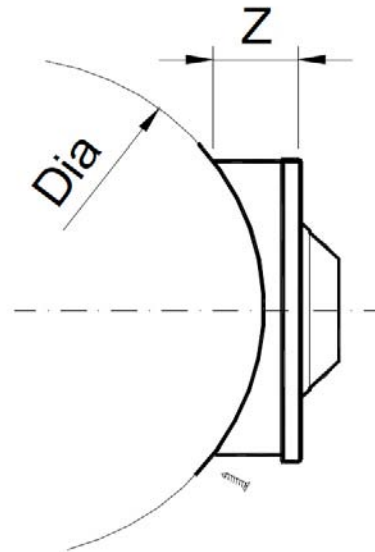
Project:
Engineer:
Architect:
Contractor:

IEK Series Round Duct Mounting Adaptor for KOO

Material | Galvanized Steel

Select Dimension			
✓	KOO Size	Nb Nozzles	Duct Dia
	8 x 4	2 x 1	
	12 x 4	3 x 1	
	16 x 4	4 x 1	
	20 x 4	5 x 1	
	24 x 4	6 x 1	
	28 x 4	7 x 1	
	32 x 4	8 x 1	
	36 x 4	9 x 1	
	40 x 4	10 x 1	
	8 x 8	2 x 2	
	12 x 8	3 x 2	
	16 x 8	4 x 2	
	20 x 8	5 x 2	
	24 x 8	6 x 2	
	28 x 8	7 x 2	
	32 x 8	8 x 2	
	36 x 8	9 x 2	
	40 x 8	10 x 2	
	12 x 6	2 x 1	
	18 x 6	3 x 1	
	24 x 6	4 x 1	
	30 x 6	5 x 1	
	36 x 6	6 x 1	
	42 x 6	7 x 1	
	48 x 6	8 x 1	
	12 x 12	2 x 2	
	18 x 12	3 x 2	
	24 x 12	4 x 2	
	30 x 12	5 x 2	
	36 x 12	6 x 2	
	42 x 12	7 x 2	
	48 x 12	8 x 2	

Select Finish	
	Mill Finish
	Powder Coated in RAL:



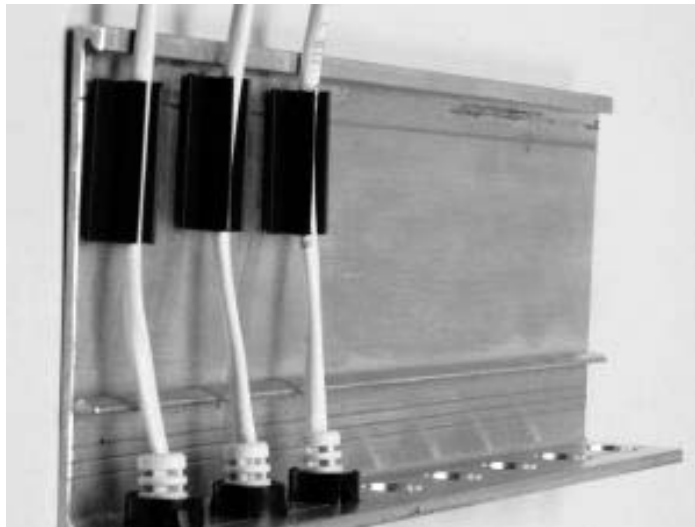
Installation Note: IEK is secured to duct using screws. KOO is secured to IEK using concealed spring clips.

Project:	
Engineer:	
Architect:	
Contractor:	

EB-AB8

Eight Connector Wall Bracket for EB Dampers

Material | Extruded Aluminum



Select Model	
✓	Model
	EB-AB8

Project:
Engineer:
Architect:
Contractor:

EB-REMOTE

Battery Powered Remote Control for EB Dampers



Select Model	
✓	Model
	EB-REMOTE

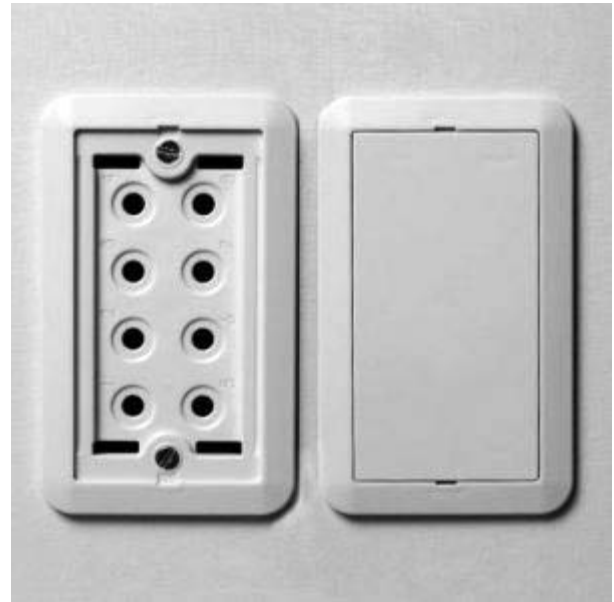
Project:
Engineer:
Architect:
Contractor:

EB-SP Series Drywall Termination Fixtures for EB Dampers

Material | UL 94-V0 flammability rated white nylon



EB-SP1



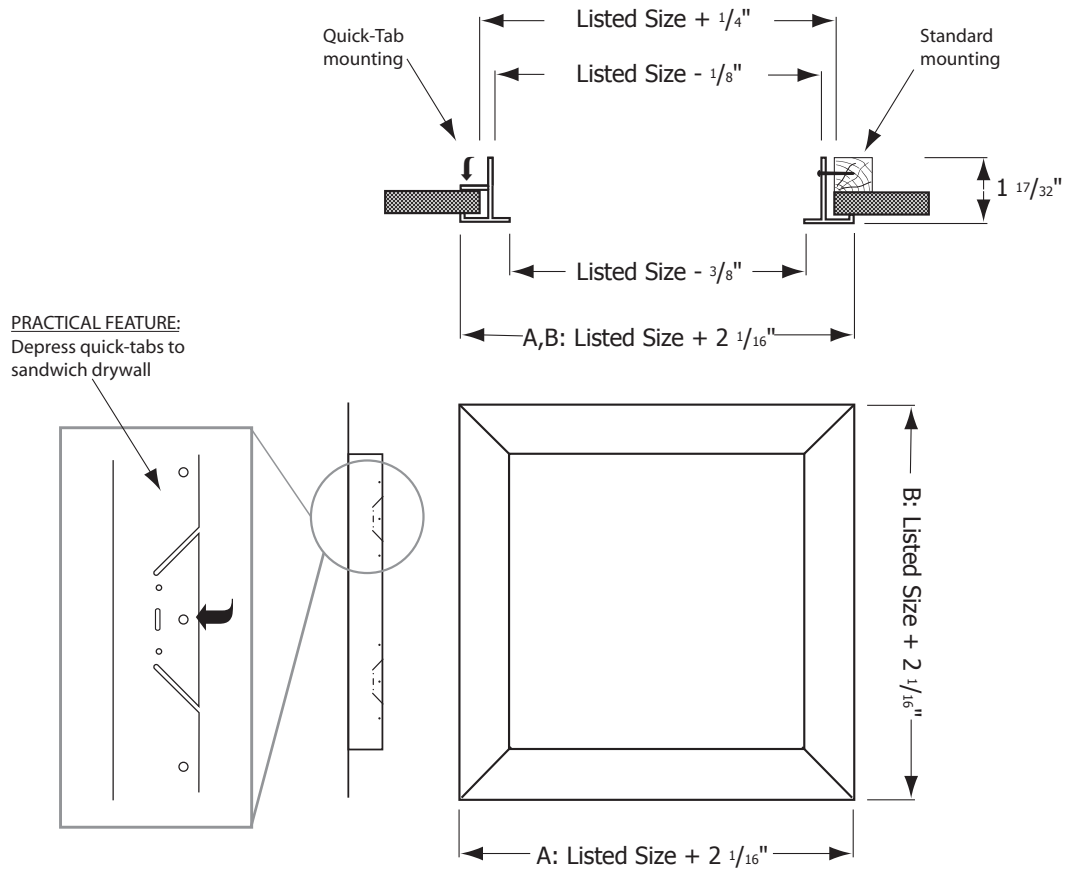
EB-SP8

Select Model		
✓	Model	
	EB-SP1	Single Connector Panel
	EB-SP8	Eight Connector Panel

Project:
Engineer:
Architect:
Contractor:

PF Plaster Frame - Drywall Frame - for Lay-in Diffusers and Returns

Material | heavy gauge extruded aluminum.



Select Model			
✓	Model	Listed Size A x B	Overall Dim. A x B
	PF 1212	12" x 12"	14 1/16" x 14 1/16"
	PF 2424	24" x 24"	26 1/16" x 26 1/16"
	PF 4812	48" x 12"	50 1/16" x 14 1/16"

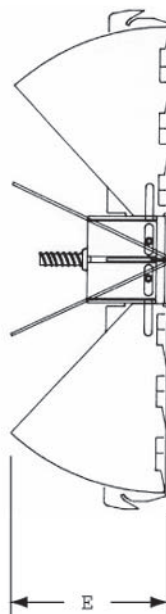
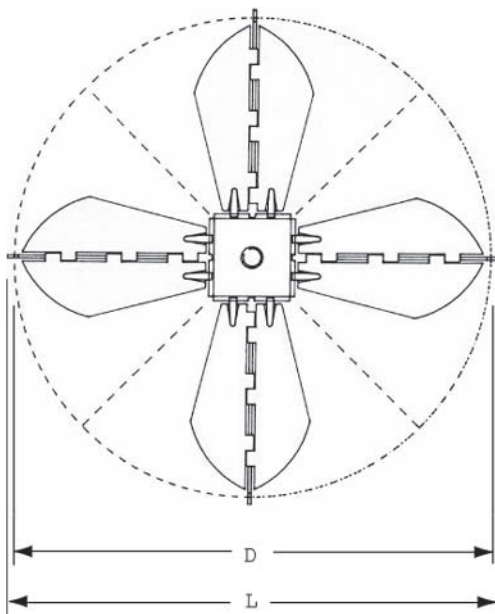
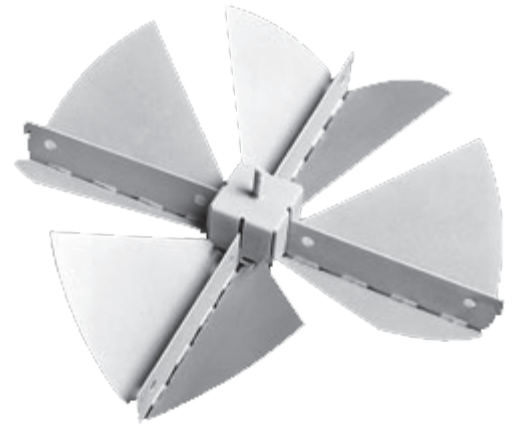
Select Finish	
	Powder Coated White RAL9016
	Other RAL:

Project:
Engineer:
Architect:
Contractor:

OBD Series Radial Opposed Blade Dampers

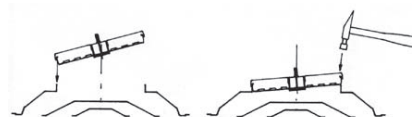
Material | heavy gauge galvanized steel.

Matching Products | DCG 6" and 12", TWIST 6", 8", 10" and 12".



Vertical operator accepts standard screwdriver for slotted or hex head thru diffuser face.

Installation



Select Model				
✓	Model	L	D	E
	OBD 06	6"	5 3/4"	2 3/8"
	OBD 08	8"	7 3/4"	3 1/8"
	OBD 10	10"	9 3/4"	3 3/4"
	OBD 12	12"	11 3/4"	4 1/2"

Project:

Engineer:

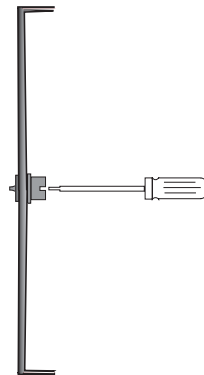
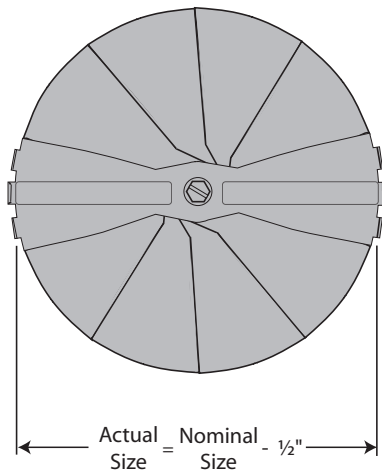
Architect:

Contractor:

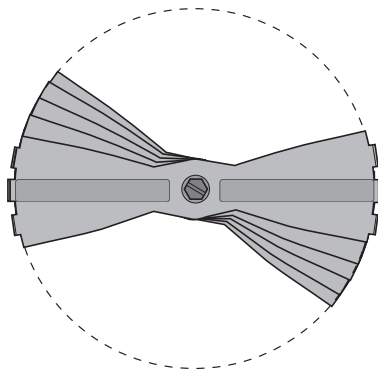
RSBD Series Radial Sliding Blade Dampers

Material | heavy gauge galvanized steel.

Matching Products | DCG 6" and 12", TWIST 6", 8", 10" and 12".



Vertical operator accepts standard screwdriver for slotted or hex head thru diffuser face.



Select Model		
✓	Model	L
	RSBD 06	6"
	RSBD 08	8"
	RSBD 10	10"
	RSBD 12	12"

Project:
Engineer:
Architect:
Contractor:



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