



AXP
Aluminum Round Swirl Diffuser

EFFECTIVE  [®]







The logo for EFFECTIVE features the word "EFFECTIVE" in a bold, sans-serif font. To the right of the text is a graphic element consisting of two parallel, slanted lines that curve upwards and to the right, resembling a stylized checkmark or a swoosh. A registered trademark symbol (®) is located at the bottom right of the graphic.

AXP SERIES

Aluminum Round Swirl Diffuser



AXP

-  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.

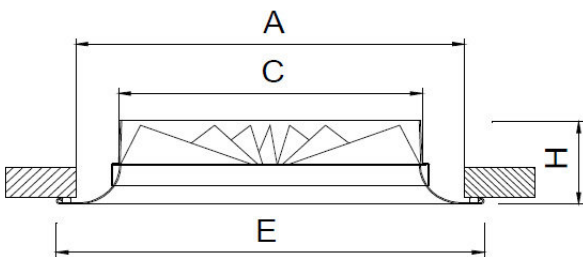
Their round shape together with the helical design of their vanes cause a stable swirl diffusion of the air stream, obtaining a high induction rate and reducing the stratification.

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

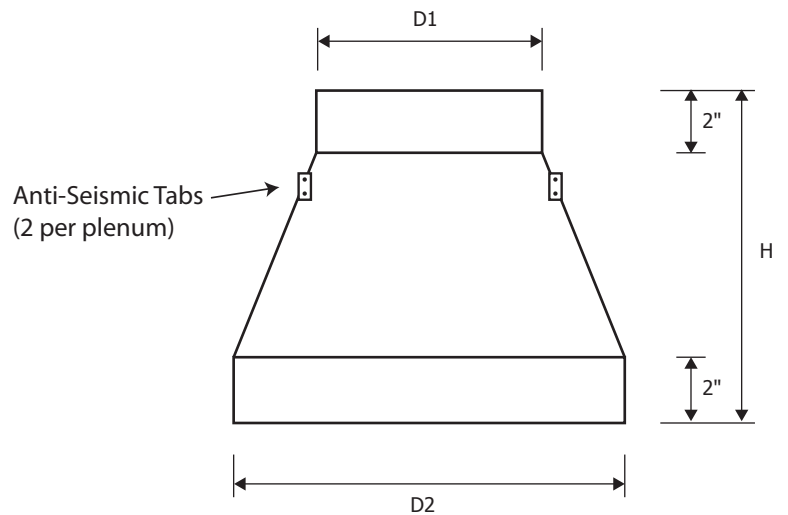
-  Great for cooling and ventilation
-  Closed drywall ceilings or open ceilings with exposed spiral duct
-  Offices and Meeting Rooms
-  Restaurants, Bars, Hotels, Stores
-  VAV Applications
-  Comfort-critical applications
-  Commercial and Industrial



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.

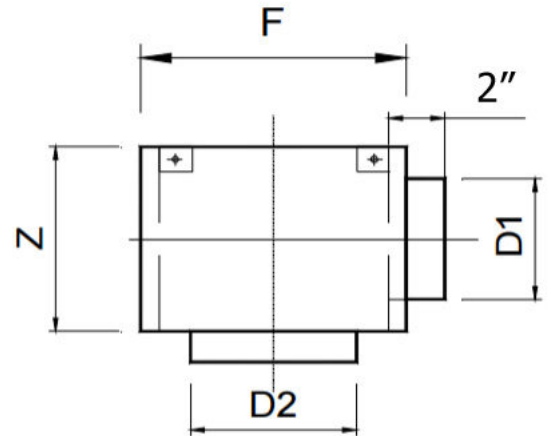
Model	Duct	D1	D2	H
PLRR 0504	4"	3 7/8	5	6
PLRR 0505	5"	4 7/8	5	6
PLRR 0605	5"	4 7/8	6 3/8	6
PLRR 0606	6"	5 7/8	6 3/8	6
PLRR 0805	5"	4 7/8	8	8
PLRR 0806	6"	5 7/8	8	8
PLRR 0808	8"	7 7/8	8	8
PLRR 1006	6"	5 7/8	10	8
PLRR 1008	8"	7 7/8	10	8
PLRR 1010	10"	9 7/8	10	8
PLRR 1208	8"	7 7/8	12 3/8	10
PLRR 1210	10"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

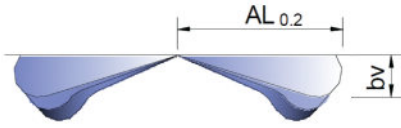
Neck Size	Neck (fpm) Velocity	200	300	400	500	600	700	800
	Velocity Pressure (H2O)	.002	.006	.010	.016	.022	.031	.040
5" (125mm)	CFM	27	41	55	68	82	95	109
	Pressure Loss (in.w.g.)	0.016	0.039	0.075	0.119	0.161	0.241	0.361
	NC	< 15	< 15	18	26	32	37	40
	Throw (ft) - Coanda Effect	3-4-7	4-6-10	5-8-12	6-10-15	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.

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)	