PATENT PENDING

UV™

AXO-UV

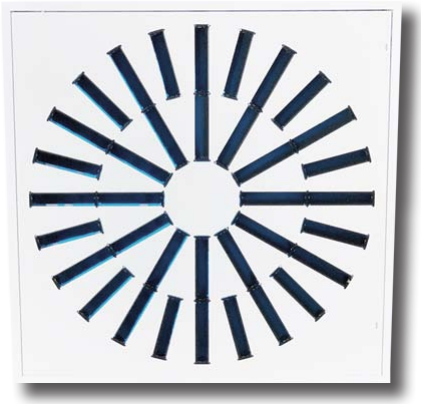
High Induction Swirl UV Diffusers

UL CERTIFIED SAFETY

EFFECTIV™

Jan 7 2025

AXO-UV SERIES
High Induction Swirl UV Diffusers



AXO-UV

PATENT PENDING

- 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

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 22ºF (12ºC) and a maximum temperature of 110ºF (43ºC). 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 - 150 cfm

AXO-S400-UV

100 - 250 cfm

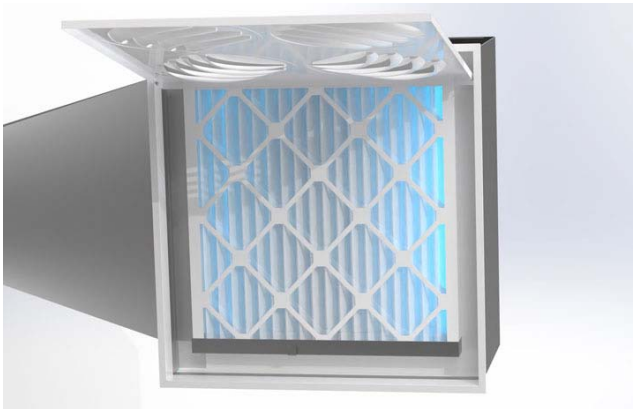
AXO-S-UV

150 - 450 cfm

AXO-SX-UV

200 - 500 cfm

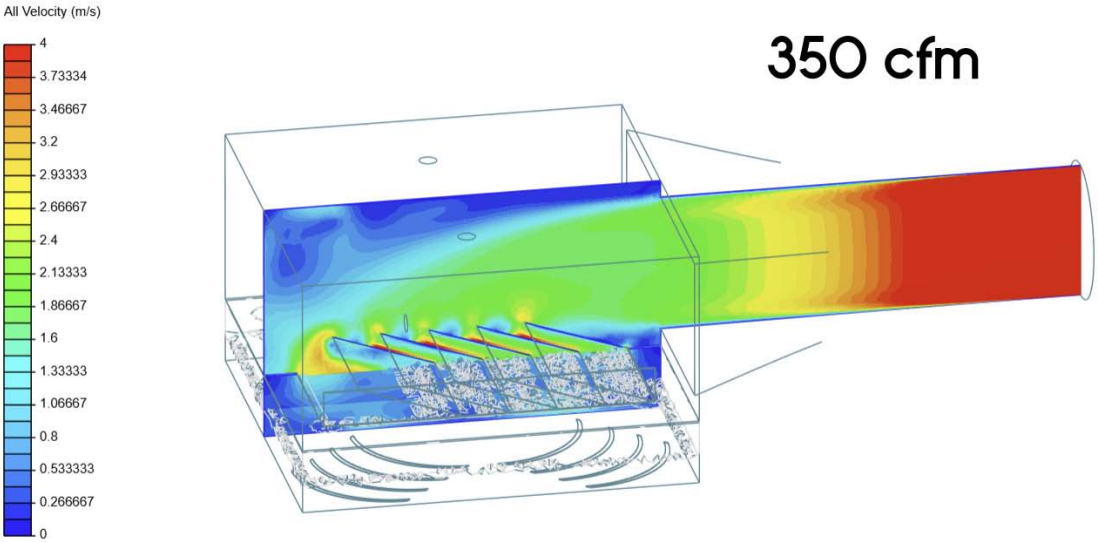
How UV Diffusers Work



1. Air Filtration

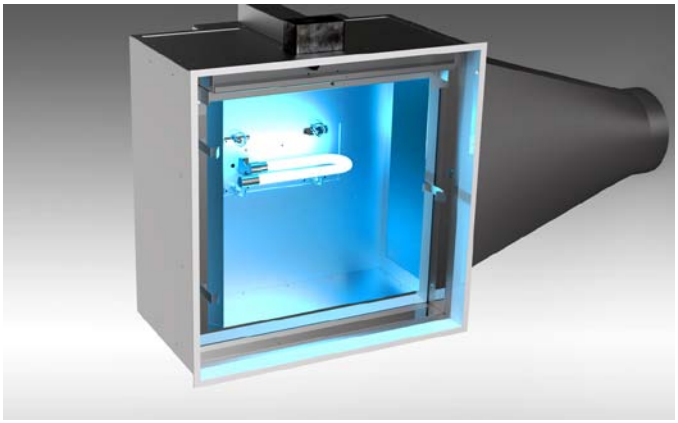
UV Diffusers integrate a UV-resistant MERV-9 or MERV-7 filter to catch larger particles including dust, spores and mites, removing allergens and other irritants, and improving air quality.

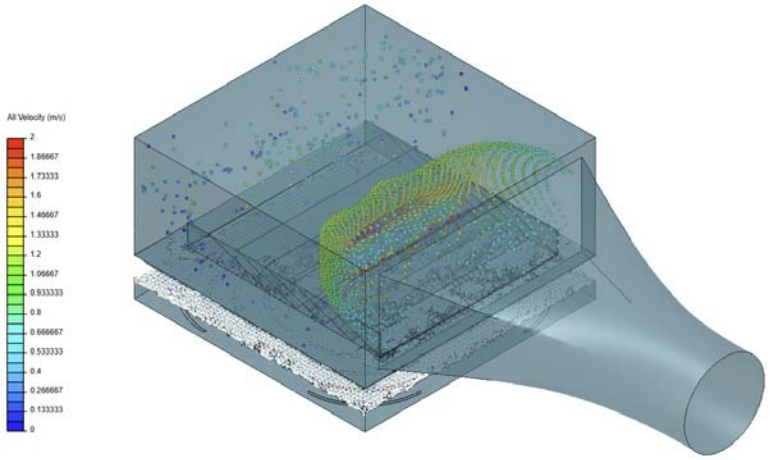
The filter also helps to pressurize the air inside the plenum and slow it down significantly.



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.



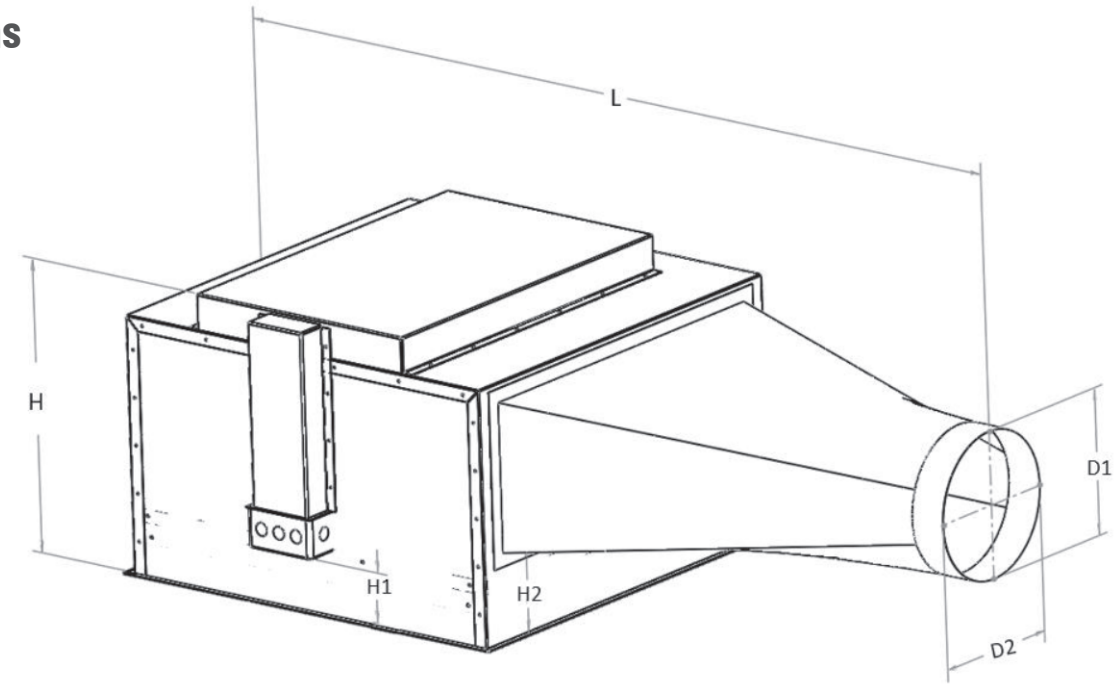


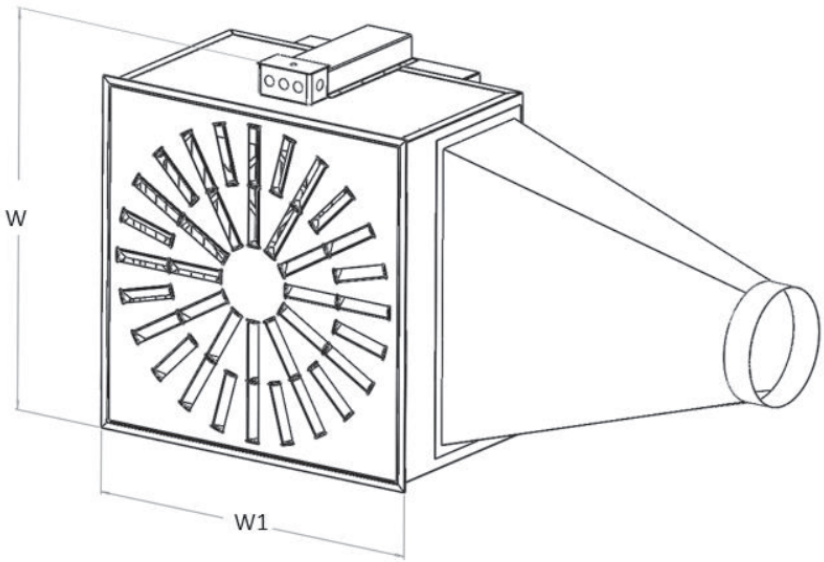
The placement of the UV lamp, the airflow trajectory, the shape and dimension of the plenum and collar for light reflection and the materials - everything has been thought out in order to improve air disinfection efficiency.

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

UV Specifications

UV Output 253.7nm - 100hr (per lamp)	12.0 W
Intensity @ 1m (per lamp)	90 µW/cm2
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

Electrical Specifications

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

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

Free Area (sqf)	CFM Min	CFM Max
0.10	50	150

AXO-S300-UV

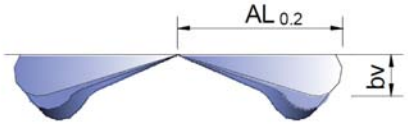
Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700
	Velocity Pressure (H2O)	0.002	0.006	0.010	0.016	0.022	0.031
6	CFM	39	59	79	98	118	137
	Pressure Loss (in.w.g.) - White Filter	0.02	0.04	0.06	0.1	0.14	0.18
	Pressure Loss (in.w.g.) - Carbon Filter	0.02	0.04	0.06	0.1	0.14	0.18
	NC	< 15	< 15	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 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

Throw Correction Factors - Airflow Adjustments - AXO-S300-UV

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

Induction Ratio and Delta T Ratio - AXO-S300-UV

Ratios			
Throw (ft)	i	Delta T Ratio	**induced room air = supplied cfm * i** induced room air = cfm mixed for given throw
4	10	0.046	
6	17	0.028	**Delta T (Throw) = Delta T (Supply) * Delta T Ratio** Delta T (Supply) = T (Room) - T (Supply) Delta T (Throw) = T (Room) - T (Throw)
8	23	0.022	
10	29	0.017	
15	48	-	
20	65	-	

AXO-S400-UV Airflow Performance Data

Free Area (sqf)	CFM Min	CFM Max
0.22	100	250

AXO-S400-UV

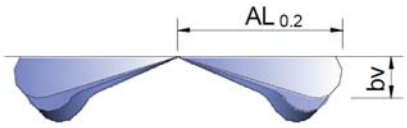
Neck Size (inches)	Neck (fpm) Velocity	200	300	400	500	600	700	800	1000
	Velocity Pressure (H2O)	0.002	0.006	0.01	0.016	0.022	0.031	0.041	.062
6	CFM		59	79	98	118	137	157	196
	Pressure Loss (in.w.g.) - White Filter		0.013	0.022	0.032	0.045	0.059	0.077	0.117
	Pressure Loss (in.w.g.) - Carbon Filter		0.019	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 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

Throw Correction Factors - Airflow Adjustments - AXO-S400-UV

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

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

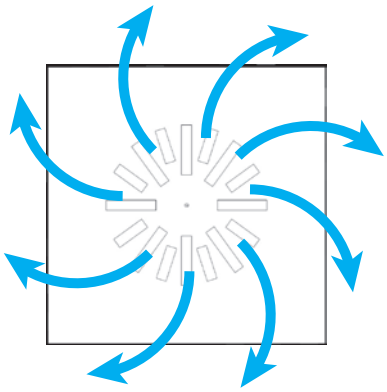
induced room air = cfm mixed for given throw

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

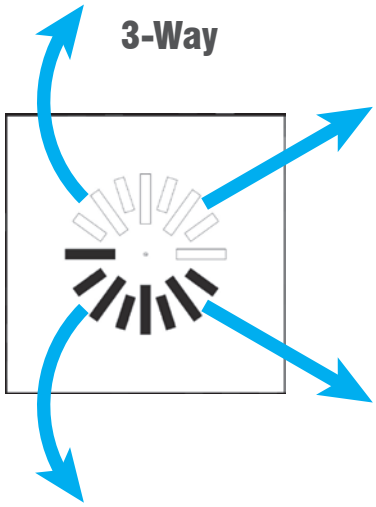
Delta T (Supply) = T (Room) - T (Supply)
Delta T (Throw) = T (Room) - T (Throw)

AXO-S400-UV Adjustment and Patterns

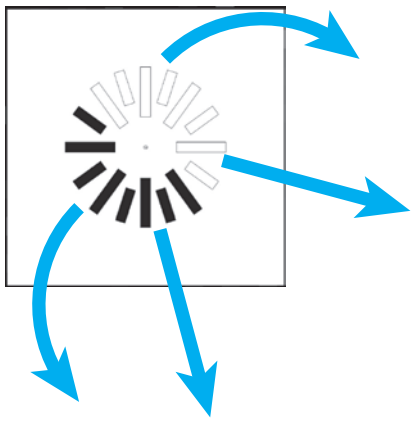
Swirl (standard)



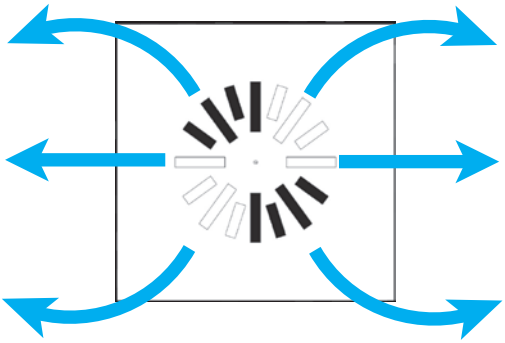
3-Way



2-Way Corner

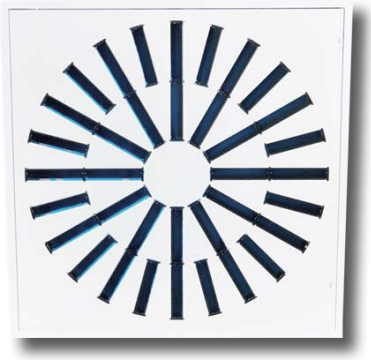


2-Way Opposed



AXO-S-UV Airflow Performance Data

Free Area (sqf)	CFM Min	CFM Max
0.48	150	450



AXO-S-UV

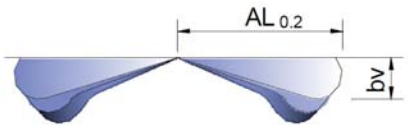
Neck Size (inches)	Neck (fpm) Velocity	300	400	500	600	700	800	1000	1200	1400
	Velocity Pressure (H2O)	0.006	.010	.016	.022	.031	.041	.062	.090	.122
6	CFM			98	118	137	157	196	236	275
	Pressure Loss (in.w.g.) - White Filter			0.01	0.014	0.018	0.023	0.035	0.05	**0.067**
	Pressure Loss (in.w.g.) - Carbon 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 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

Throw Correction Factors - Airflow Adjustments - AXO-S-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-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

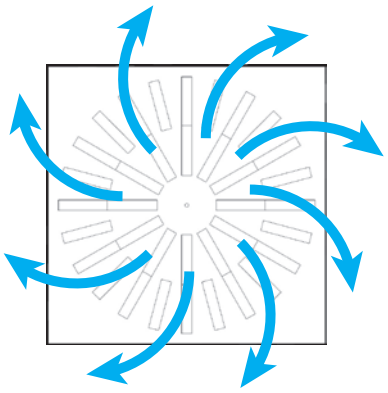
induced room air = cfm mixed for given throw

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

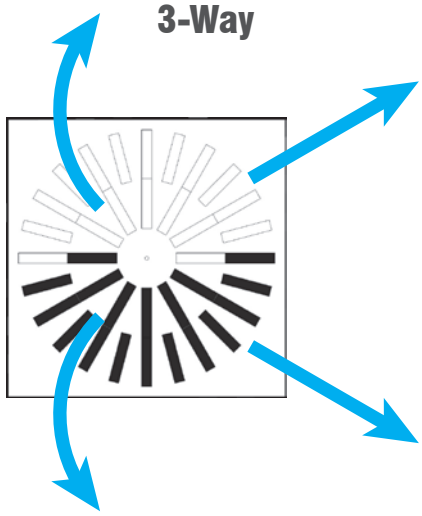
Delta T (Supply) = T (Room) - T (Supply)
Delta T (Throw) = T (Room) - T (Throw)

AXO-S-UV Adjustment and Patterns

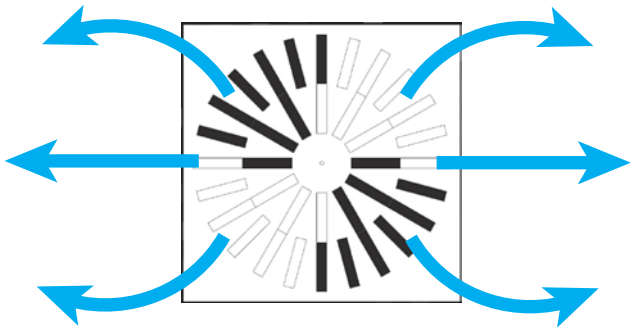
Swirl (standard)



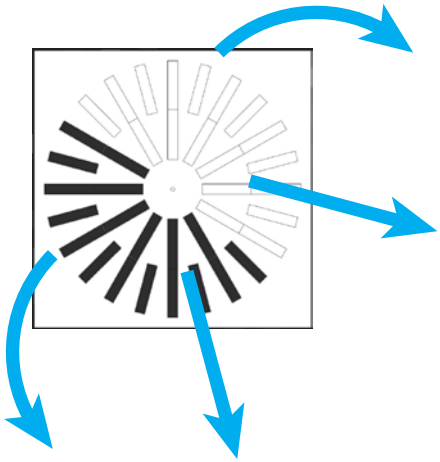
3-Way



2-Way Opposed

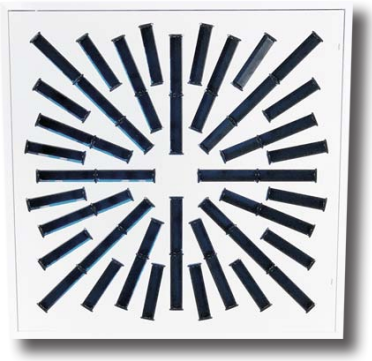


2-Way Corner



AXO-SX-UV Airflow Performance Data

Free Area (sqf)	CFM Min	CFM Max
0.62	200	500



AXO-SX-UV

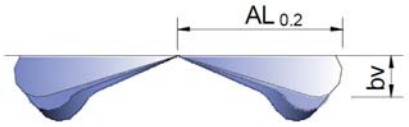
Neck Size (inches)	Neck (fpm) Velocity	400	500	600	700	800	1000	1200	1400	1600
	Velocity Pressure (H2O)	.010	.016	.022	.031	.041	.062	0.09	0.122	0.16
6	CFM			118	137	157	196	236	275	314
	Pressure Loss (in.w.g.) - White Filter			0.012	0.016	0.02	0.031	0.044	0.06	**0.078**
	Pressure Loss (in.w.g.) - Carbon 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 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

Throw Correction Factors - Airflow Adjustments - AXO-SX-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-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

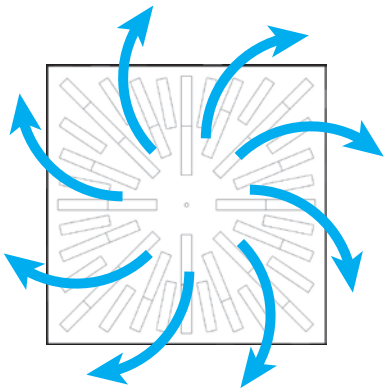
induced room air = cfm mixed for given throw

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

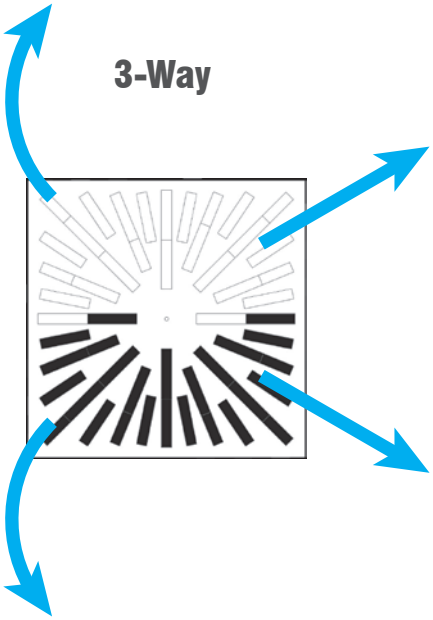
Delta T (Supply) = T (Room) - T (Supply)
Delta T (Throw) = T (Room) - T (Throw)

AXO-SX-UV Adjustment and Patterns

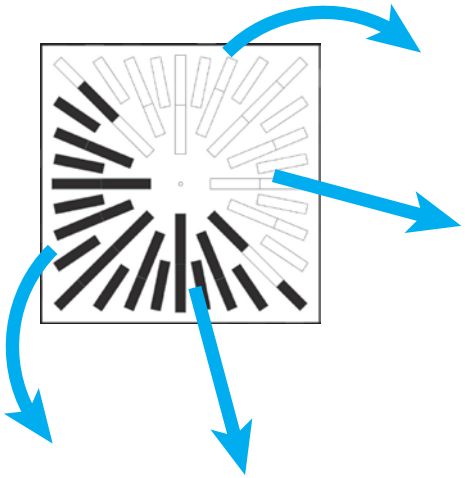
Swirl (standard)



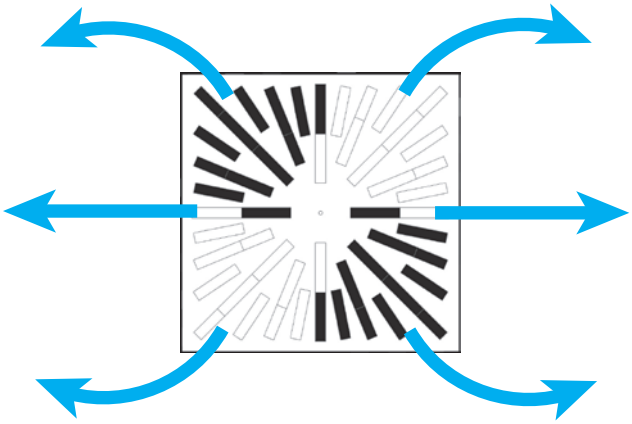
3-Way



2-Way Corner



2-Way Opposed



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%
Ricksettsia prowazekii	>99.9999%	99.9996%	99.9919%	99.9465%	99.8122%
Staphilococcus 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 baumanii	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%
Coxsachievirus	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 diphteriae	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%
Streptocuccus 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%
Ricksettsia prowazekii	99.5395%	99.0977%	98.4776%	97.6865%
Staphilococcus 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 baumanii	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%
Coxsachievirus	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 diphteriae	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%
Streptocuccus 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 500 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

AXO-S-ALU-UV 2410

Diffuser Face
AXO-S300
AXO-S400
AXO-S
AXO-SX
OTO
PLAY

Face Material
(default = steel)
ALU = aluminum

UV Filtration System
Plenum with UV-C lamp

Face Dimension
24" x 24" (all)

Duct Adapter
6" duct diameter
7" duct diameter
8" duct diameter
10" duct diameter
12" duct diameter

UV DIFFUSERS

UVdiffusers.com