
Products of WB Air

WB Air

air distribution products

form function reliability

AIR LIGHT TROFFERS

Model : WB - SALT

Light Troffer Diffusers

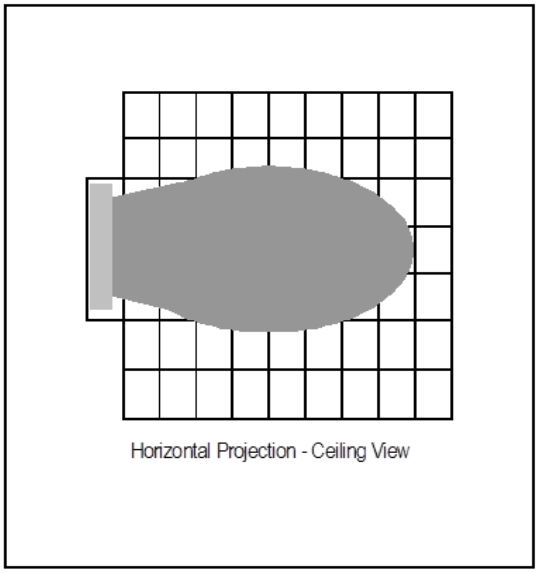
Model : WB-SALT

Air Diffusion with Light Troffer Diffusers

The SALT series of light troffer diffusers has been developed to provide superior horizontal air distribution at low sound levels when interfaced with compatible air handling light fixtures. The SALT series can be factory coordinated to accommodate the normal slot configurations of either surface slot or regressed slot air handling light fixtures.

The light troffer diffuser has been designed with a curved pattern controller which provides a superior horizontal air pattern, resulting in optimum space air distribution, ideal for general air conditioning applications. The horizontal air pattern produces maximum entrainment of room air, generating the air motion required to provide optimum comfort conditions throughout the occupied zone.

The consistent horizontal air pattern eliminates the need for the installer or balancing contractor to adjust the pattern controller to avoid vertical air discharge. This performance feature eliminates vertical air discharge pattern, the most frequent source of complaint about draft conditions in occupied zones, when field setting of adjustable pattern controllers has been overlooked.



Horizontal Projection - Ceiling View

Diffuser Selection and Layout

The selection and layout of light troffer diffusers in a space will depend on the size of the space, light fixture module, amount of air to be supplied, required space noise level, number of diffusers required and throw.

The type of diffusers used will depend on the amount of air to be supplied to the space and the required capacity per diffuser.

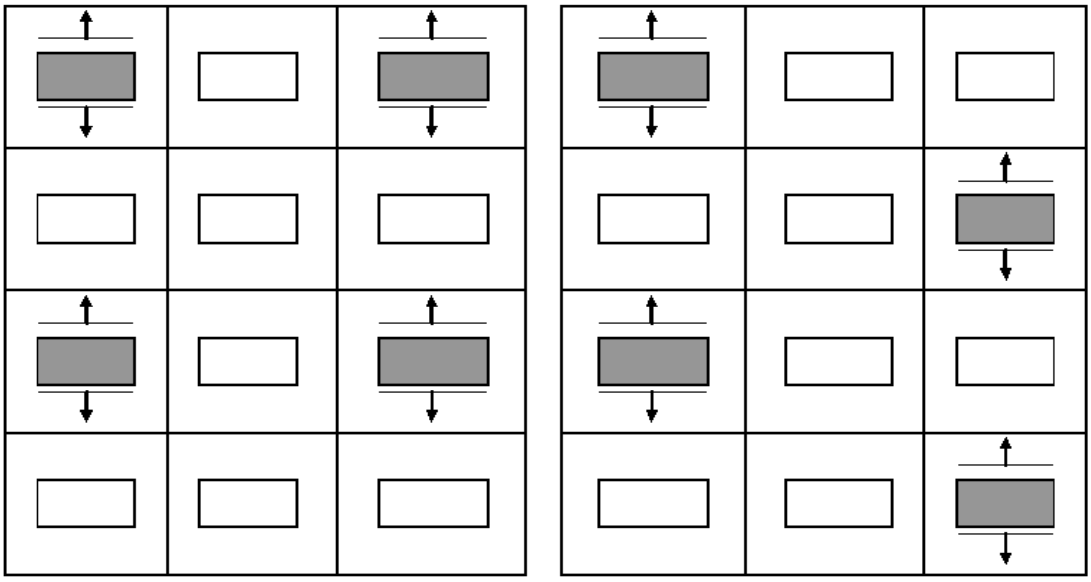
Light Troffer Diffusers

Model : WB-SALT

Light troffer diffusers provide a good method of air distribution up to an air loading of between 2 and 3 cfm per square foot, (10 to 15L/s per square metre). Based on a 9ft (2.74m) ceiling height, this is equal to between 13 and 20 air changes per hour.

Location of the diffusers will depend on the lighting module. The spacing of the diffusers will be determined by the air pattern and throw. Where diffusers discharge towards each other, the throw should be equal to one-half the distance between the diffusers plus 2ft (0.6m). Where diffusers discharge toward a wall, the throw should be equal to the distance between the wall and diffuser plus 2ft (0.6m). These throw recommendations are based on a 9ft (2.74m) ceiling height. The capacity of the diffusers should be selected to satisfy the above throw requirements, sufficient diffusers should be used to provide good, even air distribution throughout the space. Typical diffusers arrangements are shown below.

Diffuser Patterns



Alternate Row Pattern

Alternate Row Staggered Pattern

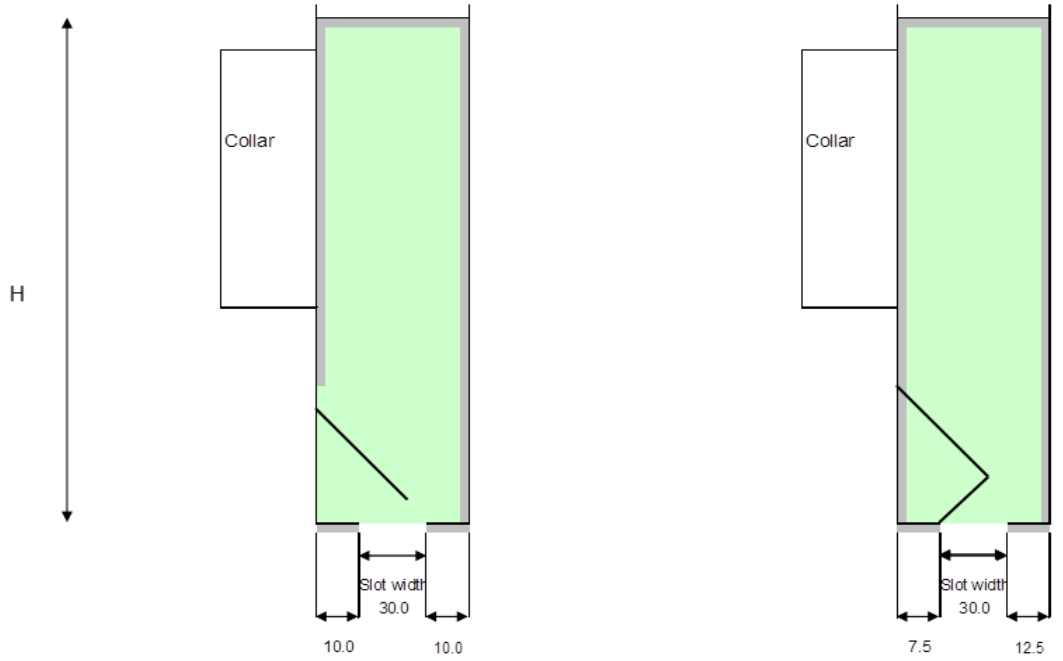
Short-Circuiting

Where light fixture slots are used for supply and return air, concern has been raised with regard to short circuiting of the supply air. When the supply air is discharged toward the return air slot, the return slot should be located at a distance equal to or greater than the supply air throw to a terminal velocity of 50 fpm. If this criteria is followed, the amount of short circuiting will not be significant.

When the supply air stream reaches the point of Vt=50 fpm, the temperature of the air stream will be within 1oF (0.6oC) of the room temperature due to the entrainment of room air. Thus the work of the supply air stream in picking up the heat load and generating room air motion has been accomplished.

Light Troffer Diffusers

Model : WB-SALT-S



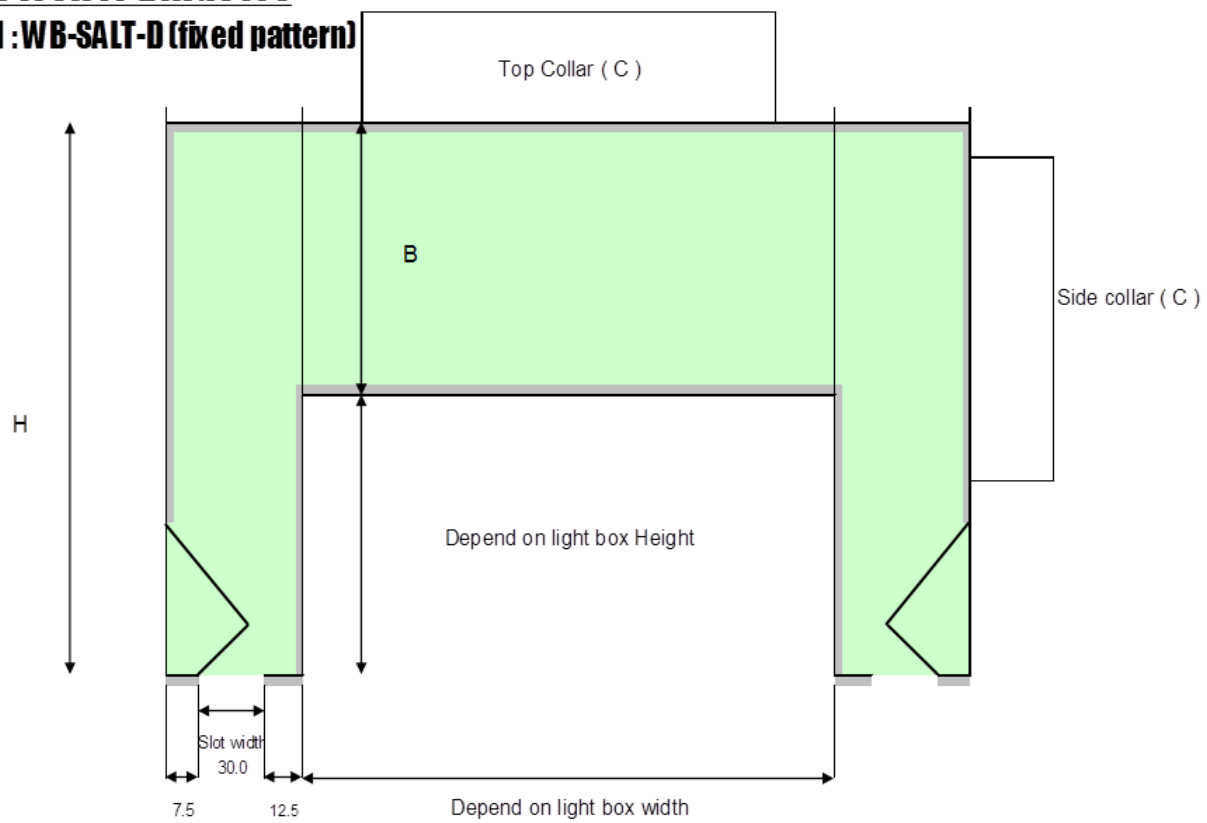
N.T.S

Adjustable **Fixed**

an ISO certified company
WB Air distribution products

Light Troffer Diffusers

Model : WB-SALT-D (fixed pattern)



N.T.S

Light Troffer Diffusers

Model : WB-SALT

Dimensional Data

WB - SALT - S : Single sided supply air light troffer

Oval Collar Size	C	H (m)	Tested Volume (m3)
Oval 150 dia	100	0.205	0.0120
Oval 200 dia	150	0.25	0.0146
Oval 250 dia	200	0.25	0.0146
Oval 300 dia	225	0.275	0.0161

Round Collar Size	C	H (m)	Tested Volume (m3)
Round 150 dia	140	0.23	0.0135
Round 200 dia	190	0.275	0.0161
Round 250 dia	240	0.275	0.0161
Round 300 dia	290	0.3	0.0176

WB - SALT - D : Double sided supply air light troffer

Oval Collar Size	C	B (m)	H (m)	Tested Volume (m3)
Oval 150 dia	100	0.08	0.205	0.060
Oval 200 dia	150	0.125	0.25	0.086
Oval 250 dia	175	0.125	0.25	0.086
Oval 300 dia	225	0.15	0.275	0.100

Round Collar Size	C	B (m)	H (m)	Tested Volume (m3)
Round 150 dia	140	0.08	0.23	0.063
Round 200 dia	190	0.125	0.275	0.088
Round 250 dia	240	0.125	0.275	0.088
Round 300 dia	290	0.15	0.3	0.103

Corresponding collar size

Collar size	Air quantity (cmh)		
150	0	to	200
200	201	to	360
250	361	to	580
300	581	to	850

Light Troffer Diffusers

Model : WB-SALT

Performance Data

WB - SALT - S : Single sided supply air light troffer

Length 600 — **20mm slot**

Air Quantity (cfm)	78	98	118	137	157	176	196	235	274
Air Quantity (cmh)	133	167	200	233	267	299	333	399	466
Horizontal projection (ft)	15	20	22.5	23.75	26.25	27.5	28.75	31.25	33.75
Horizontal projection (m)	4.65	6.20	6.97	7.36	8.13	8.52	8.91	9.68	10.46
Total Pressure (inch wg)	0.0525	0.0813	0.1175	0.1588	0.2075	0.2638	0.325	0.4675	0.6375
Total Pressure (Pa)	13.06	20.22	29.24	39.50	51.63	65.63	80.87	116.33	158.64
NC	22.5	31.25	37.5	42.5	47.5	51.25	55	61.25	67.5

1200

Air Quantity (cfm)	140	175	209	244	279	314	349	419	489
Air Quantity (cmh)	238	297	355	415	474	533	593	712	831
Horizontal projection (ft)	11.25	17.5	22.5	23.75	26.25	27.5	28.75	31.25	33.75
Horizontal projection (m)	3.49	5.42	6.97	7.36	8.13	8.52	8.91	9.68	10.46
Total Pressure (inch wg)	0.0425	0.0663	0.095	0.13	0.17	0.215	0.265	0.3813	0.5188
Total Pressure (Pa)	10.58	16.49	23.64	32.35	42.30	53.50	65.94	94.87	129.09
NC	20	27.5	33.75	40	45	48.75	52.5	58.75	63.75

Length 600 — **25mm slot**

Air Quantity (cfm)	78	98	118	137	157	176	196	235	274
Air Quantity (cmh)	133	167	200	233	267	299	333	399	466
Horizontal projection (ft)	15	18.75	21.25	22.5	25	26.25	27.5	30	32.5
Horizontal projection (m)	4.65	5.81	6.58	6.97	7.75	8.13	8.52	9.29	10.07
Total Pressure (inch wg)	0.0425	0.0663	0.095	0.13	0.17	0.215	0.265	0.3813	0.5188
Total Pressure (Pa)	10.58	16.49	23.64	32.35	42.30	53.50	65.94	94.87	129.09
NC	20	27.5	33.75	40	45	48.75	52.5	58.75	63.75

1200

Air Quantity (cfm)	140	175	209	244	279	314	349	419	489
Air Quantity (cmh)	238	297	355	415	474	533	593	712	831
Horizontal projection (ft)	11.25	16.25	20	22.5	25	26.25	27.5	30	32.5
Horizontal projection (m)	3.49	5.03	6.20	6.97	7.75	8.13	8.52	9.29	10.07
Total Pressure (inch wg)	0.0338	0.0538	0.0763	0.1038	0.1363	0.1725	0.2125	0.3063	0.4175
Total Pressure (Pa)	8.40	13.38	18.97	25.82	33.90	42.92	52.88	76.21	103.89
NC	18	24.75	30.375	36	40.5	43.875	47.25	52.875	57.375

Performance Notes

1. Units are tested in accordance to ADC Test Code 10624R4 and Ashrae Standard 36B72
2. Horizontal projection is to a terminal velocity of 50 fpm (0.25m/s) . Values are for throws each side .
3. To obtain static pressure , subtract inlet duct velocity pressure from total pressure .
4. NC , sound pressure levels are based on a room absorption of 10dB re 10-12 watts and one diffuser .

Light Troffer Diffusers

Model : WB-SALT

Performance Data

WB - SALT - D : Double sided supply air light troffer

Length 600 — 20mm slot

Air Quantity (cfm)	78	98	118	137	157	176	196	235	274
Air Quantity (cmh)	133	167	200	233	267	299	333	399	466
Horizontal projection (ft)	12	16	18	19	21	22	23	25	27
Horizontal projection (m)	3.66	4.88	5.49	5.79	6.4	6.71	7.01	7.62	8.23
Total Pressure (inch wg)	0.042	0.065	0.094	0.127	0.166	0.211	0.26	0.374	0.51
Total Pressure (Pa)	10.45	16.17	23.39	31.6	41.31	52.51	64.7	93.07	126.91
NC	18	25	30	34	38	41	44	49	54

1200 — 20mm slot

Air Quantity (cfm)	140	175	209	244	279	314	349	419	489
Air Quantity (cmh)	238	297	355	415	474	533	593	712	831
Horizontal projection (ft)	9	14	18	19	21	22	23	25	27
Horizontal projection (m)	2.74	4.27	5.49	5.79	6.4	6.71	7.01	7.62	8.23
Total Pressure (inch wg)	0.034	0.053	0.076	0.104	0.136	0.172	0.212	0.305	0.415
Total Pressure (Pa)	8.46	13.19	18.91	25.88	33.84	42.8	52.75	75.9	103.27
NC	16	22	27	32	36	39	42	47	51

Length 600 — 25mm slot

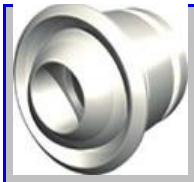
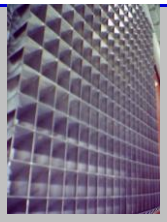
Air Quantity (cfm)	78	98	118	137	157	176	196	235	274
Air Quantity (cmh)	133	167	200	233	267	299	333	399	466
Horizontal projection (ft)	12	15	17	18	20	21	22	24	26
Horizontal projection (m)	3.66	4.57	5.18	5.49	6.1	6.4	6.71	7.32	7.92
Total Pressure (inch wg)	0.034	0.053	0.076	0.104	0.136	0.172	0.212	0.305	0.415
Total Pressure (Pa)	8.46	13.19	18.91	25.88	33.84	42.8	52.75	75.9	103.27
NC	16	22	27	32	36	39	42	47	51

1200 — 25mm slot

Air Quantity (cfm)	140	175	209	244	279	314	349	419	489
Air Quantity (cmh)	238	297	355	415	474	533	593	712	831
Horizontal projection (ft)	9	13	16	18	20	21	22	24	26
Horizontal projection (m)	2.74	3.96	4.88	5.49	6.1	6.4	6.71	7.32	7.92
Total Pressure (inch wg)	0.027	0.043	0.061	0.083	0.109	0.138	0.17	0.245	0.334
Total Pressure (Pa)	6.72	10.7	15.18	20.65	27.12	34.34	42.3	60.97	83.11
NC	14	20	24	29	32	35	38	42	46

Performance Notes

1. Units are tested in accordance to ADC Test Code 10624R4 and Ashrae Standard 36B72
2. Horizontal projection is to a terminal velocity of 50 fpm (0.25m/s) . Values are for throws each side .
3. To obtain static pressure , subtract inlet duct velocity pressure from total pressure .
4. NC , sound pressure levels are based on a room absorption of 10dB re 10-12 watts and one diffuser .

WB Air

air distribution products since 1965

diffusers


dampers

grilles

ducting accessories

architectural outlets

filters


flexible ducts

air troffers

insulation materials

louvres


nozzles

silencers

VAV terminal units

it's not just about superficial aesthetics , it's about a perfect unison of form , function and reliability






WB Air Techniques Pte Ltd

Block 7 Toa Payoh Industrial Park #01-1245

Singapore 319059

tel : 65 6252-6707

fax : 65 6253-4435

email wbsales@singnet.com.sg

www.wbair.sg

Wong Brothers & WB air techniques pte ltd reserves the right to change product specifications without prior notification . Information in this publication and otherwise supplied to users as to the subject product is based on our general experience and is given in good faith ,but due to the many particular factors which are outside our knowledge and control and thus affect the use of products ,no warranty is given or is to be implied with respect to either such information or product itself,in particular the suitability of the product for any particular purpose.

The purchaser should independently determine the suitability of the product for the intended application . **Thank you for choosing WB Air for your air distribution needs.**