

**Channelaire Extruded Aluminum Linear Diffuser (CH, CR).....A-145 to A-159**

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**SLOT PATTERN ADJUSTMENT**



Perpendicular



Parallel Left



Parallel Right



Blank Off



Parallel One-Way  
Multiple Slot



Parallel Two-Way  
Multiple Slot

*Features*

- Extruded Aluminum Construction
- Low Silhouette Design
- Excellent Horizontal Pattern at Low CFM
- Choice of 1/2", 3/4" or 1" Wide Slots
- Available to Eight Slots Wide
- Choice of Four Frame Border Widths
- Adjustable Combination Damper and Pattern Control in Each Slot
- Models for Plaster, T-bar or Spline Ceilings
- Single Unit Lengths to Six Feet Long
- Continuous Appearance to Any Length
- White Painted Frame with Black or White Pattern Control
- Durandoic and Color Anodizes are Available
- Equally Efficient for Supply and Return Applications
- 90° or 135° Mitered Corners for Perimeter Applications
- Five Optional Mounting Frame Arrangements
- Insulated or Uninsulated Plenums

**DESCRIPTION**

Carnes Series CH Channelaire is an extruded aluminum low silhouette adjustable pattern linear slot diffuser. It is available with 1/2", 3/4" or 1" wide slots up to eight slots wide. Each slot is equipped with an individually adjustable pattern control that controls the direction of air discharge either parallel with or perpendicular to the diffuser face. The adjustment from the face of the diffuser allows for pattern control in a full 180° range for either right or left parallel, intermediate or perpendicular air flow. The unique design of the Channelaire allows the same vane which controls the air pattern to also be adjustable for control of air flow rate. This dampening is accomplished without upsetting the air pattern. The Channelaire units are available with either a 13/16" or a 1-1/8" wide frame border.

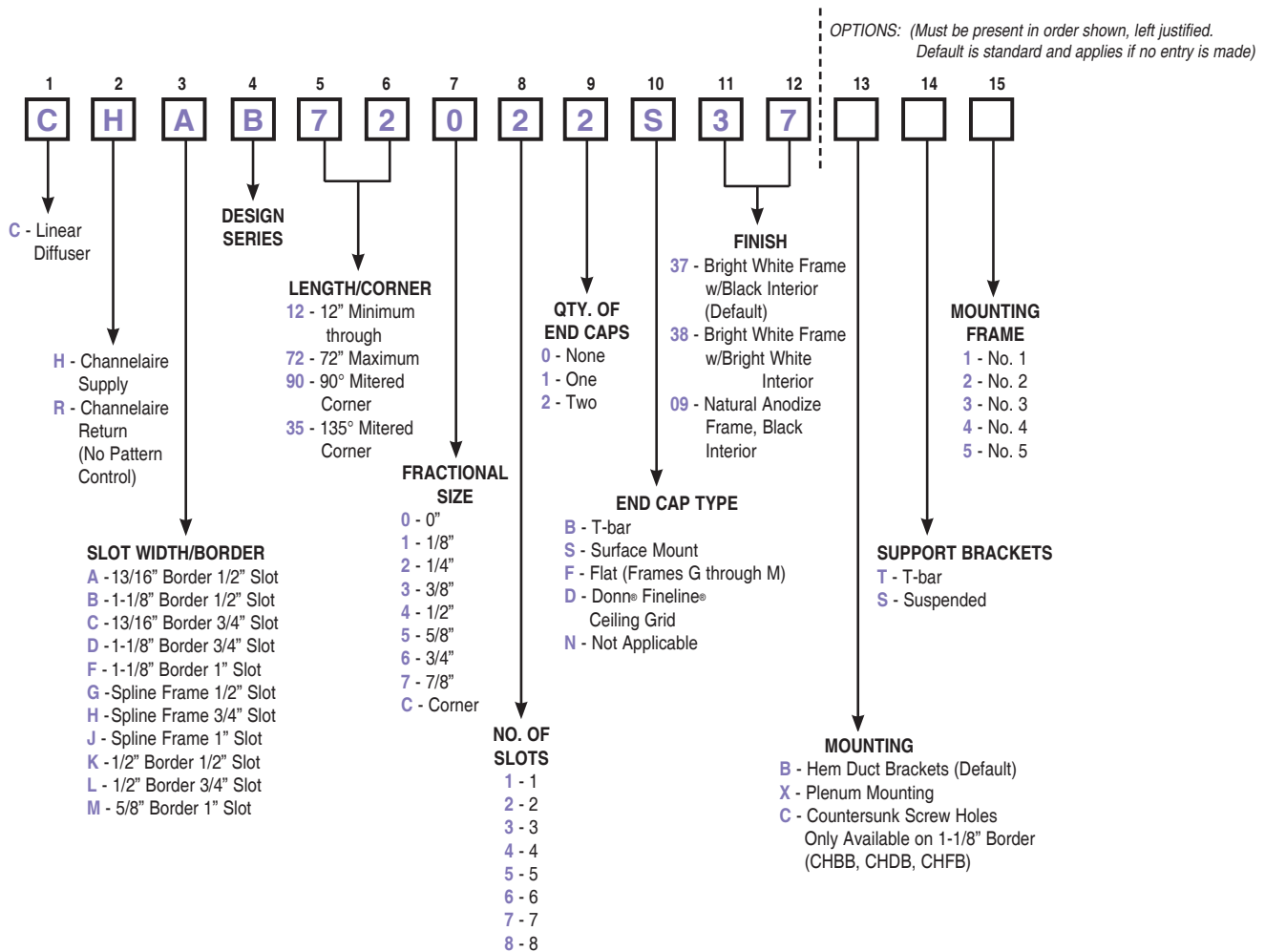
Carnes Channelaire diffusers have a pleasing aesthetic appearance when installed in either a

plaster, T-bar or spline ceiling. Mitered corners are available in 90° or 135° for perimeter application. The maximum single unit length is 72 inches. Continuous appearance to any length can be accomplished by butting two or more sections together. Joint splines are furnished to insure proper alignment. Five optional mounting frame arrangements are available to meet most ceiling applications.

The Channelaire diffusers are available with natural anodized frames with black painted pattern control, frame painted white with black pattern control or white frame with white pattern control.

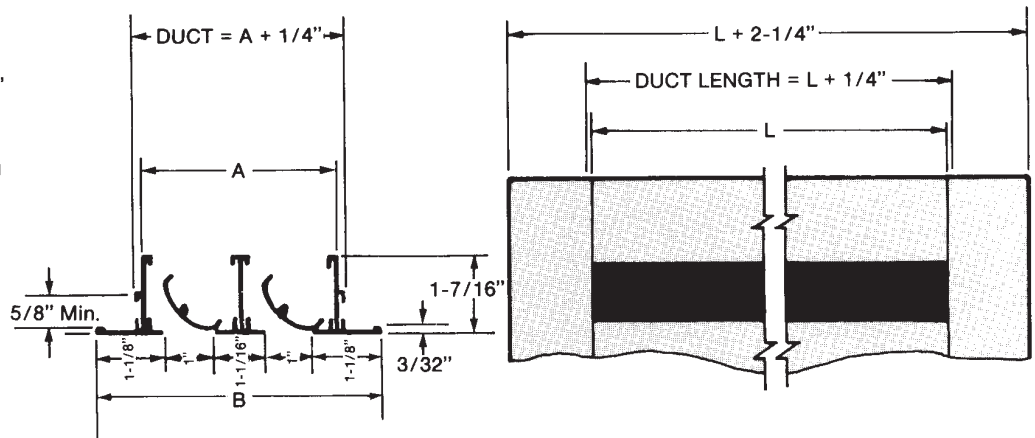
A full line of insulated or uninsulated plenums are available. The insulation is 1/2" 1-1/2" pound density fiberglass with matter face to prevent erosion. It meets the UL 181 and NFPA 90A requirements.

▼ Diffusers



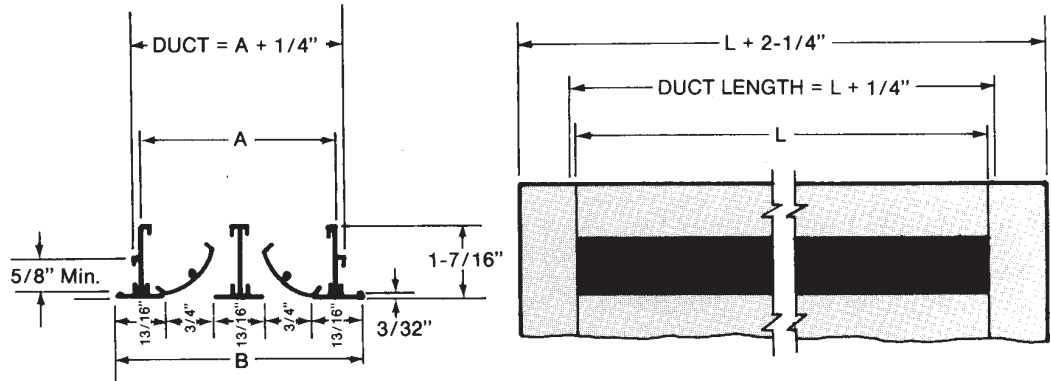
Linear, Plenum & Lt. Troffer S&R

**Model CHFB**  
1-1/8" Border  
1" Slot



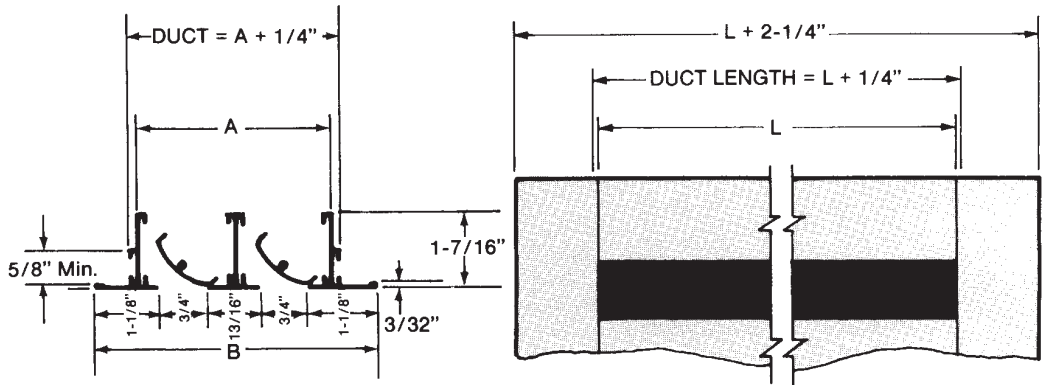
Dim.	No. of Slots							
	1	2	3	4	5	6	7	8
A	2-1/8	4-3/16	6-1/4	8-5/16	10-3/8	12-7/16	14-1/2	16-9/16
B	3-1/4	5-5/16	7-3/8	9-7/16	11-1/2	13-9/16	15-5/8	17-11/16

**Model CHCB**  
13/16" Border  
3/4" Slot

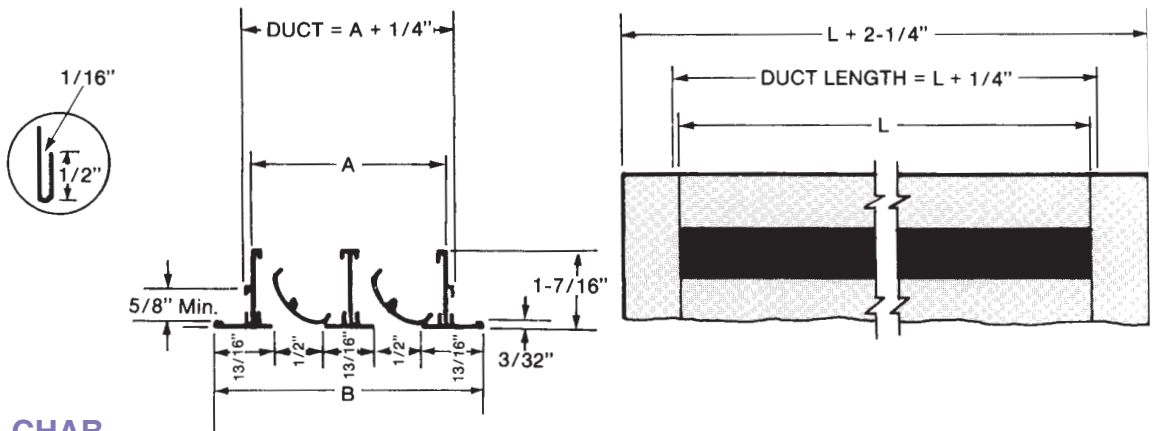


Dim.	No. of Slots							
	1	2	3	4	5	6	7	8
A	1-5/8	3-3/16	4-3/4	6-5/16	7-7/8	9-7/16	11	12-9/16
B	2-3/8	3-15/16	5-1/2	7-1/16	8-5/8	10-3/16	11-3/4	13-5/16

**Model CHDB**  
1-1/8" Border  
3/4" Slot

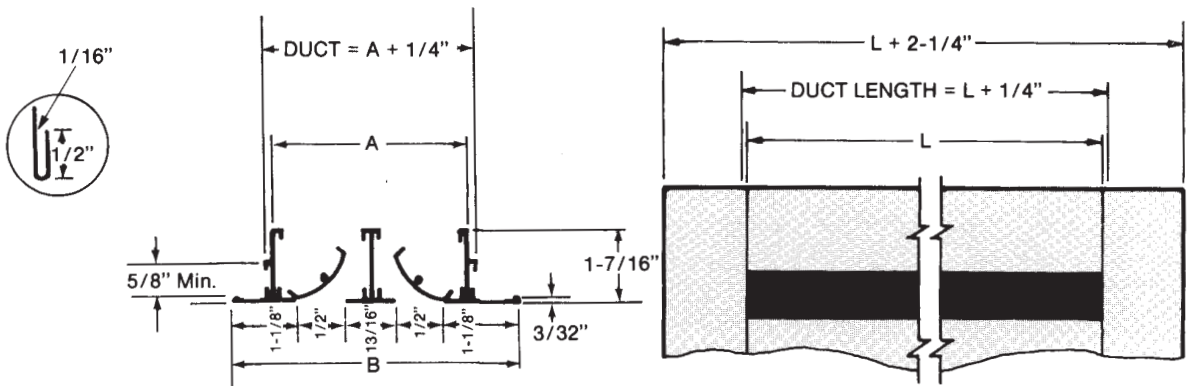


Dim.	No. of Slots							
	1	2	3	4	5	6	7	8
A	1-5/8	3-3/16	4-3/4	6-5/16	7-7/8	9-7/16	11	12-9/16
B	3	4-9/16	6-1/8	7-11/16	9-1/4	10-13/16	12-3/8	13-15/16



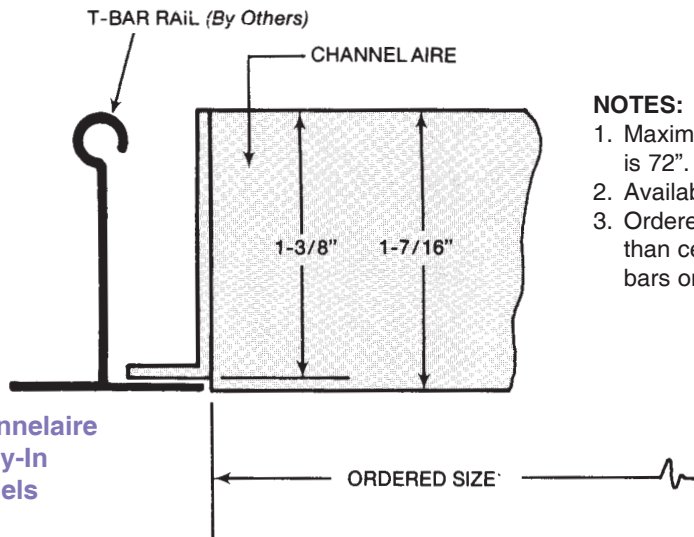
**Model CHAB**  
13/16" Border  
1/2" Slot

Dim.	No. of Slots							
	1	2	3	4	5	6	7	8
A	1-3/8	2-11/16	4	5-5/16	6-5/8	7-15/16	9-1/4	10-9/16
B	2-1/8	3-7/16	4-3/4	6-1/16	7-3/8	8-11/16	10	11-5/16



**Model CHBB**  
1-1/8" Border  
1/2" Slot

Dim.	No. of Slots							
	1	2	3	4	5	6	7	8
A	1-3/8	2-11/16	4	5-5/16	6-5/8	7-15/16	9-1/4	10-9/16
B	2-3/4	4-1/16	5-3/8	6-11/16	8	9-5/16	10-5/8	11-15/16

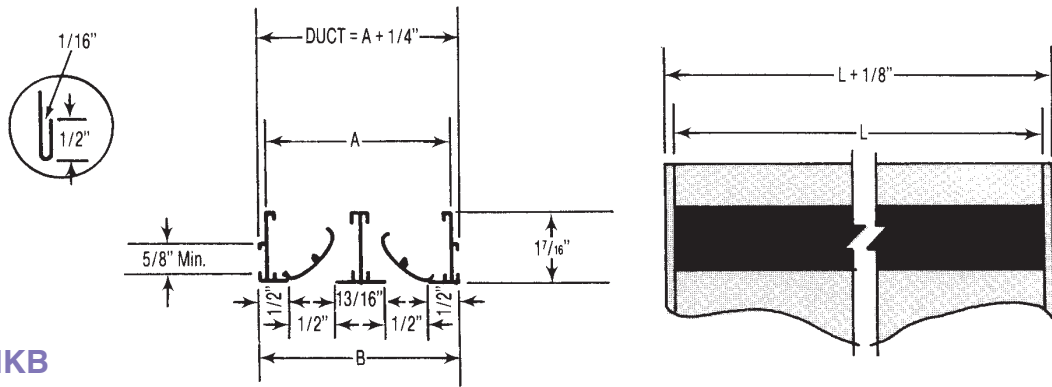


**Typical Channelaire**  
T-bar Lay-In  
All Models

**NOTES:**

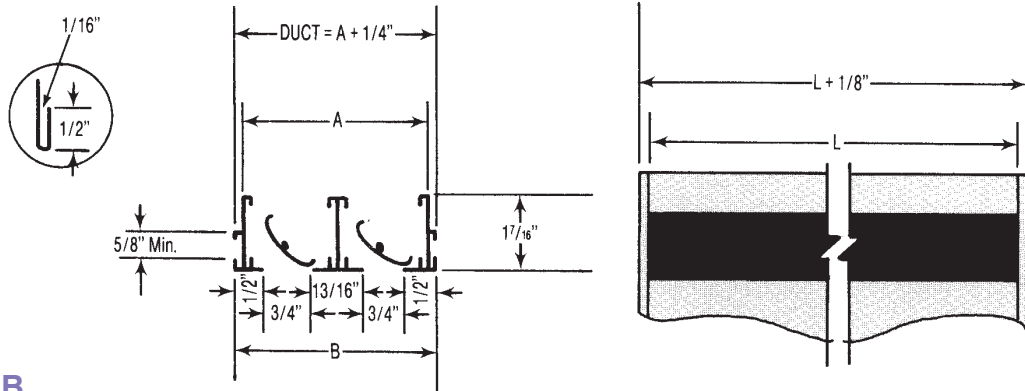
1. Maximum ordered size for piece construction is 72".
2. Available in all frame styles and slot widths.
3. Ordered size of Channelaire is 1" shorter than ceiling grid centers. (Example: For T-bars on 48" centers, order 47" long diffuser.)

**Model CHKB**  
1/2" Border  
1/2" Slot



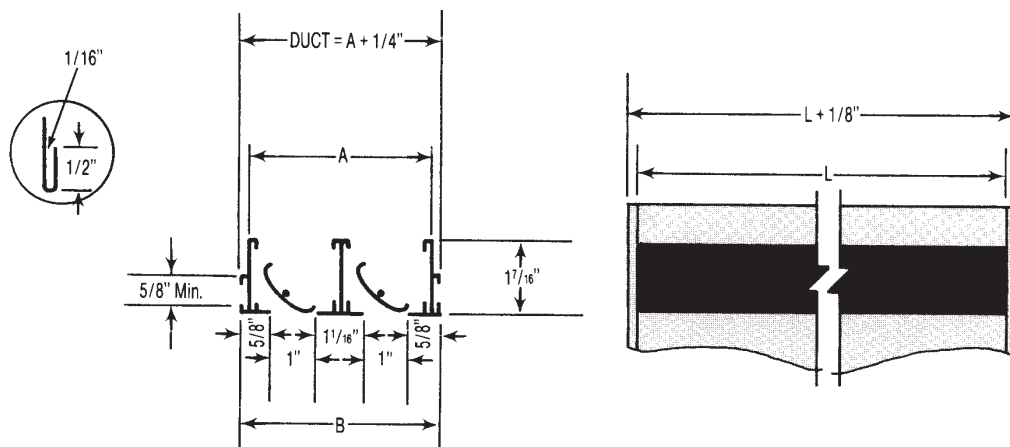
Dim.	No. of Slots							
	1	2	3	4	5	6	7	8
A	1-3/8	2-11/16	4	5-5/16	6-5/8	7-15/16	9-1/4	10-9/16
B	1-1/2	2-13/16	4-1/8	5-7/16	6-3/4	8-1/16	9-3/8	10-11/16

**Model CHLB**  
1/2" Border  
3/4" Slot

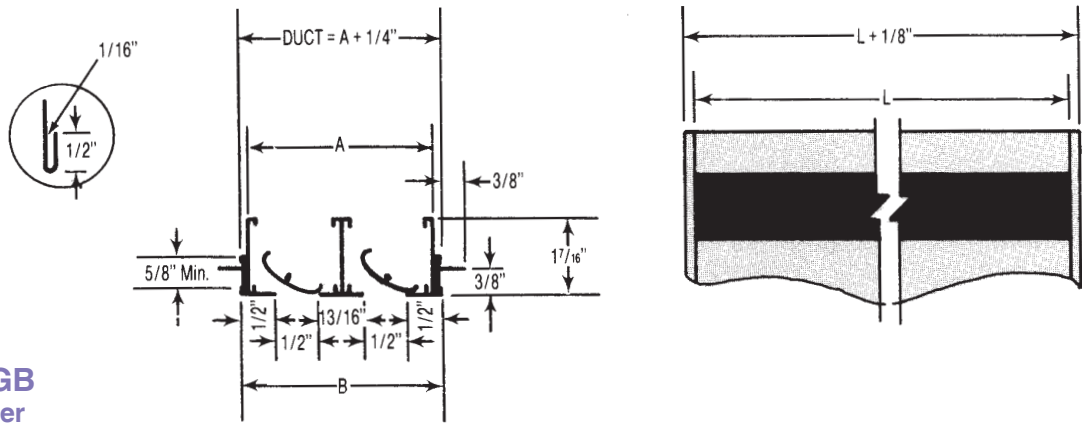


Dim.	No. of Slots							
	1	2	3	4	5	6	7	8
A	1-5/8	3-3/16	4-3/4	6-5/16	7-7/8	9-7/16	11	12-9/16
B	1-3/4	3-5/16	4-7/8	6-7/16	8	9-9/16	11-1/8	12-11/16

**Model CHMB**  
5/8" Border  
1" Slot

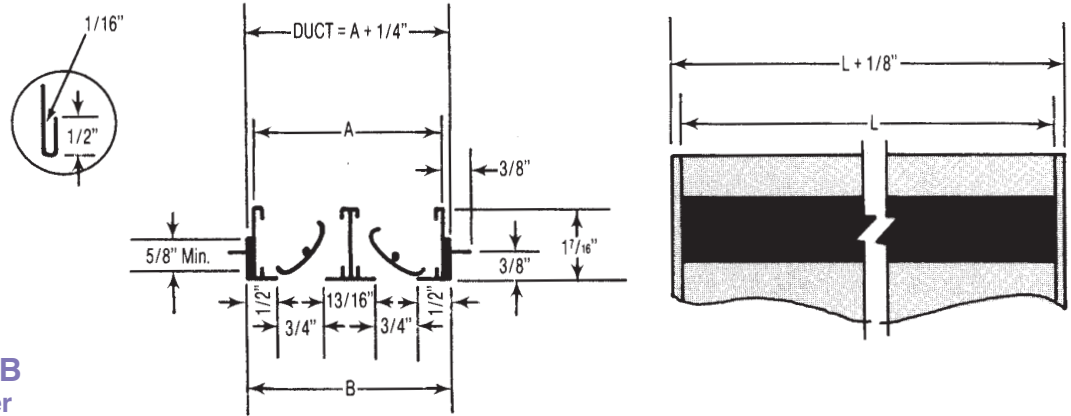


Dim.	No. of Slots							
	1	2	3	4	5	6	7	8
A	2-1/8	4-3/16	6-1/4	8-5/16	10-3/8	12-7/16	14-1/2	16-9/16
B	2-1/4	4-5/16	6-3/8	8-7/16	10-1/2	12-9/16	14-5/8	16-11/16



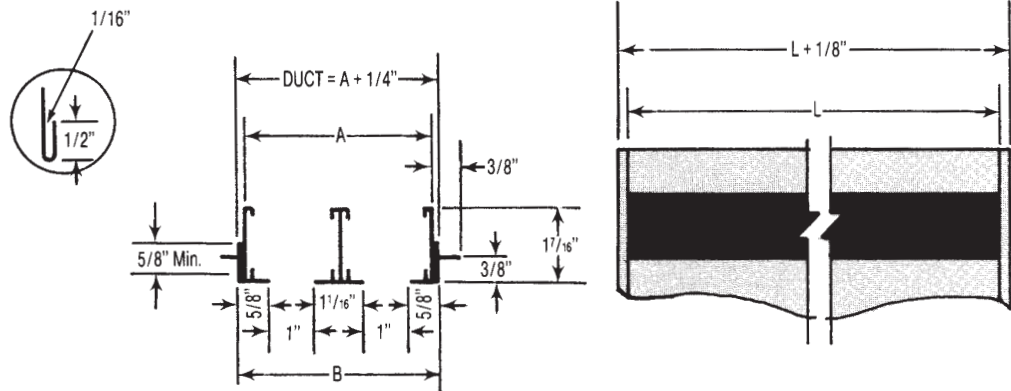
**Model CHGB**  
Spline Border  
1/2" Slot

Dim.	No. of Slots							
	1	2	3	4	5	6	7	8
A	1-3/8	2-11/16	4	5-5/16	6-5/8	7-15/16	9-1/4	10-9/16
B	1-1/2	2-13/16	4-1/8	5-7/16	6-3/4	8-1/16	9-3/8	10-11/16



**Model CHHB**  
Spline Border  
3/4" Slot

Dim.	No. of Slots							
	1	2	3	4	5	6	7	8
A	1-5/8	3-3/16	4-3/4	6-5/16	7-7/8	9-7/16	11	12-9/16
B	1-3/4	3-5/16	4-7/8	6-7/16	8	9-9/16	11-1/8	12-11/16



**Model CHJB**  
Spline Border  
1" Slot

Dim.	No. of Slots							
	1	2	3	4	5	6	7	8
A	2-1/8	4-3/16	6-1/4	8-5/16	10-3/8	12-7/16	14-1/2	16-9/16
B	2-1/4	4-5/16	6-3/8	8-7/16	10-1/2	12-9/16	14-5/8	16-11/16

**Guide Specifications**

Diffusers shall be adjustable slot type of extruded aluminum construction with one or more parallel slots. Each slot shall contain pattern controls, adjustable from the face of the diffuser to deflect the discharge air along a selected axis within a semi-circle of 180°. The same pattern controls shall function as volume control dampers without affecting the air discharge pattern.

For continuous installations, butted units shall be provided with alignment splines. Screws or other fasteners shall not be visible after installation.

**Definition of Terms**

**TOTAL PRESSURE** (*Inches of Water*)

Total pressure is equal to static pressure + velocity pressure immediately upstream of the diffuser with pattern control set for minimum resistance (i.e., in each slot the pattern control is set at 3/8" opening).

**THROW** (*Feet*)

Throws are based on supply air temperature equal to room temperature; thus, chilled supply air will result in throw values less than tabulated.

Throw data is shown for terminal velocities of 150, 100 and 50 feet per minute.

Throw data is based on a 6 foot length of diffuser as a continuous installation in a 9 foot ceiling. For higher ceilings reduce the throw rating by 1 foot for each 1 foot increase in ceiling height.

Throw data is based on all slots discharging air in the same direction. For 2-way pattern, select throws on the basis of CFM/Foot per number of slots blowing in each direction.

**SOUND DATA**

NC = Noise Criteria, db based on 10 db room attenuation. (Rating "L" means lower than 20 db.)

Sound ratings are based on a 4 foot long unit. For greater lengths add correction to rating.

No. of 4 Foot Lengths	db To Be Added
1	0
2	3
3	5
4	6
6	8
10	10

If pattern control is in dampering position, sound levels will be increased as follows:

Slot Opening	Effective Damper Opening %	Total Resistance %	db To Be Added
3/8	100	100 Minimum	0
5/16	80	150	6
1/4	65	220	13
3/16	50	420	20

Finish shall consist of natural anodized exterior surfaces and flat black finish on visible interior deflector member.

Mounting frames, where specified, shall contain flanges for attaching to framing members and flanges for engaging plaster or spline type tile. Frames shall also contain alignment spline sockets.

Plenums, if required, shall be Carnes Model CXPB either insulated or uninsulated.

**PERPENDICULAR DISCHARGE**

When pattern control is adjusted for discharge perpendicular to the face of the diffuser, (i.e., in neutral attitude and positioned 3/8" from face of diffuser) these factors apply to the performance data.

**Total Pressure:**

Slot Width	Multiply Tabulated Data By
1/2"	0.90
3/4"	0.80
1"	0.70

Slot Width	Subtract from Tabulated NC
1/2"	2 db
3/4"	3 db
1"	4 db

**RETURN AIR**

When Channelaire is used as an air return, either ducted or plenum, the pattern control is used for dampering only. With pattern control set at wide open, (i.e., 7/16") these correction factors apply to the performance data.

Slot Width	Multiply Tabulated Data By
1/2"	0.65
3/4"	0.60
1"	0.55

Slot Width	Subtract from Tabulated NC
1/2" & 3/4"	7 db
1"	8 db



No. of Slot	CFM/Foot	1/2" Slot					3/4" Slot					1" Slot				
		Pt	NC	Throw-FPM			Pt	NC	Throw-FPM			Pt	NC	Throw-FPM		
				150	100	50			150	100	50			150	100	50
1	10	.01	L	1	3	6	.01	L	1	2	5	.01	L	1	2	3
	15	.03	L	4	6	12	.02	L	3	5	10	.01	L	2	4	8
	20	.05	L	6	10	17	.03	L	5	9	15	.02	L	4	7	12
	25	.07	L	9	13	22	.05	L	8	12	19	.02	L	7	10	16
	30	.11	22	12	16	25	.07	L	11	15	23	.04	L	9	12	19
	40	.19	30	16	21	30	.13	25	15	20	28	.06	20	12	17	24
	50	.30	37	19	24	34	.20	31	18	23	32	.10	27	15	19	27
	60						.29	37	20	25	35	.15	32	18	22	31
70											.20	36	19	24	34	
2	20	.01	L	2	4	10	.01	L	2	3	8	.01	L			
	25	.02	L	4	7	14	.01	L	4	6	13	.01	L	2	4	8
	30	.03	L	5	9	18	.02	L	5	8	16	.01	L	3	6	11
	40	.05	L	8	13	23	.03	L	8	12	21	.02	L	6	10	17
	50	.07	20	11	16	27	.05	L	11	15	25	.02	L	9	13	21
	60	.11	25	14	20	30	.07	20	13	18	28	.04	L	11	16	24
	70	.14	30	16	22	33	.10	24	15	21	31	.05	L	13	18	27
	80	.19	34	19	25	36	.13	28	17	23	33	.06	23	16	21	30
	90	.24	37	21	27	38	.16	31	19	26	36	.08	26	17	23	32
	100	.29	40	22	28	40	.20	34	21	27	38	.10	30	19	24	34
	120						.29	40	23	30	41	.15	35	21	27	37
	140											.20	39	23	29	40
3	30	.01	L	3	6	14	.01	L	3	5	12		L			
	40	.02	L	6	10	20	.01	L	5	8	17	.01	L	4	7	14
	50	.03	L	8	13	24	.02	L	7	11	21	.01	L	6	10	18
	60	.05	L	10	16	27	.03	L	9	15	25	.02	L	8	12	21
	70	.06	20	12	18	30	.04	L	11	17	28	.02	L	10	15	24
	80	.08	23	14	20	32	.06	L	13	19	30	.03	L	11	16	26
	90	.11	27	16	22	34	.07	21	15	21	32	.03	L	13	18	28
	100	.13	30	18	24	36	.09	24	17	23	34	.04	20	15	20	30
	120	.19	35	20	27	39	.13	30	20	27	38	.06	25	18	24	34
	140	.25	40	23	30	42	.17	34	22	28	40	.09	30	19	26	36
	160	.33	44	25	32	45	.23	38	24	30	42	.11	33	22	28	39
	180						.29	42	26	32	45	.15	37	23	20	41
200											.18	40	25	31	43	
4	40	.01	L	4	7	17	.01	L	4	6	15		L			
	50	.02	L	6	10	21	.01	L	5	9	19	.01	L	4	7	15
	60	.03	L	7	12	24	.02	L	7	11	22	.01	L	6	10	19
	70	.03	L	9	15	27	.02	L	8	14	25	.01	L	7	12	21
	80	.05	L	11	17	30	.03	L	10	16	28	.02	L	9	14	24
	90	.06	20	12	19	32	.04	L	12	18	30	.02	L	10	16	26
	100	.07	23	14	21	34	.05	L	13	20	32	.02	L	12	17	28
	120	.10	28	17	24	37	.07	23	16	23	35	.03	L	14	20	31
	140	.14	33	20	27	40	.10	27	19	26	38	.05	22	17	23	34
	160	.18	37	22	29	42	.13	31	21	28	40	.06	26	19	26	37
	180	.23	40	24	31	44	.16	34	23	30	42	.08	30	21	27	38
	200	.28	43	25	33	46	.20	38	24	31	44	.10	33	22	28	40
	220						.24	40	26	33	46	.11	35	24	30	42
	240						.29	43	27	35	48	.15	38	25	32	44
260											.17	40	26	32	45	
280											.20	42	26	33	46	
5	50	.01	L	5	8	20										
	60	.02	L	6	11	24	.01	L	6	10	22					
	70	.03	L	8	13	26	.01	L	8	13	15	.01	L	6	11	21
	80	.03	L	9	15	29	.02	L	9	14	27	.01	L	7	12	23
	90	.04	L	11	17	31	.02	L	10	16	29	.01	L	9	14	25
	100	.05	L	12	19	33	.03	L	11	18	31	.02	L	10	16	27
	120	.07	23	14	22	36	.05	L	14	21	34	.02	L	12	18	30
	140	.10	27	17	25	39	.06	22	16	23	37	.03	L	15	21	33
	160	.13	31	19	26	40	.08	26	18	25	38	.04	21	16	23	35
	180	.16	34	22	29	43	.10	29	21	28	41	.05	24	19	25	37
	200	.19	37	23	32	45	.12	32	22	30	43	.06	27	20	27	39
	220	.23	40	25	33	47	.15	35	23	31	44	.08	30	22	29	41
	240	.27	43	26	34	48	.18	38	25	33	46	.09	33	23	31	43
	260	.31	45	27	35	49	.21	40	26	33	47	.11	35	24	31	44
	280						.26	42	27	35	48	.12	37	25	32	45
	300											.15	39	26	33	46
325											.17	42	27	34	47	
350											.20	44	28	35	49	

Linear, Plenum & Lt. Troffer S&R

No. of Slot	CFM/Foot	Pt	NC	1/2" Slot			3/4" Slot					1" Slot				
				Throw-FPM			Pt	NC	Throw-FPM			Pt	NC	Throw-FPM		
				150	100	50			150	100	50			150	100	50
6	60	.01	L	6	10	24										
	70	.02	L	7	12	26	.01	L	7	12	25					
	80	.02	L	8	14	29	.01	L	8	13	27	.01	L	6	11	23
	90	.03	L	9	16	31	.02	L	9	15	29	.01	L	8	13	25
	100	.04	L	11	18	32	.02	L	10	17	30	.01	L	9	15	27
	120	.05	L	13	20	35	.03	L	12	19	33	.02	L	11	17	30
	140	.07	23	15	23	38	.04	L	14	22	36	.02	L	13	20	32
	160	.09	27	17	25	40	.05	22	16	24	38	.03	L	15	21	34
	180	.11	30	19	27	42	.07	25	18	26	40	.03	20	17	23	36
	200	.13	33	21	29	44	.08	28	20	27	41	.04	23	18	25	38
	220	.16	36	23	31	45	.10	31	22	30	43	.05	26	20	27	39
	240	.19	38	24	33	47	.12	33	23	31	44	.06	29	21	29	41
	260	.22	41	25	34	48	.14	36	24	32	46	.07	31	22	29	42
	280	.25	43	26	35	49	.16	38	25	33	47	.08	34	23	31	43
	300	.29	45	28	36	50	.19	40	26	34	48	.10	36	25	32	45
	325						.22	42	27	35	49	.12	38	25	33	46
350						.26	45	29	36	50	.13	40	26	34	47	
375						.30	47	30	37	52	.15	42	27	35	48	
400											.18	44	28	35	49	
7	70	.01	L	6	11	26										
	80	.02	L	8	13	29	.01	L	7	12	27					
	90	.02	L	9	15	31	.01	L	9	14	29	.01	L	8	12	25
	100	.03	L	10	16	32	.01	L	10	15	30	.01	L	9	14	27
	120	.04	L	12	19	35	.02	L	11	18	33	.01	L	10	17	30
	140	.05	20	14	22	38	.03	L	13	21	36	.02	L	12	19	32
	160	.06	23	16	24	40	.04	L	15	23	38	.02	L	13	20	34
	180	.08	27	17	25	41	.05	20	16	24	39	.03	L	15	22	36
	200	.10	30	19	28	43	.06	23	18	26	41	.03	L	17	24	38
	220	.12	33	21	29	44	.07	26	20	27	42	.04	21	18	25	39
	240	.14	35	22	30	45	.09	29	22	29	44	.05	24	20	27	40
	260	.16	37	24	32	47	.10	31	23	31	45	.05	26	21	29	42
	280	.18	39	25	34	48	.12	33	24	32	46	.06	28	22	30	43
	300	.21	41	26	35	49	.14	35	25	33	47	.07	30	24	31	44
	325	.25	44	27	36	50	.17	38	26	34	48	.09	33	24	32	45
	350	.29	46	28	36	51	.20	40	28	36	50	.10	35	25	33	46
375						.22	42	29	37	51	.12	37	26	34	47	
400						.25	44	29	37	52	.13	39	27	35	48	
425						.29	46	30	37	52	.15	41	28	35	49	
450											.17	43	29	36	50	
8	80	.01	L	7	12	29										
	90	.02	L	8	14	31										
	100	.02	L	9	16	32	.01	L	8	15	30					
	120	.03	L	11	18	35	.02	L	10	17	33	.01	L	9	15	30
	140	.04	L	12	20	37	.02	L	12	19	35	.01	L	11	18	32
	160	.05	20	14	23	39	.03	L	13	21	37	.01	L	12	20	34
	180	.06	23	16	25	41	.04	L	15	23	39	.02	L	14	22	36
	200	.08	26	18	26	42	.05	20	17	24	40	.02	L	16	23	37
	220	.09	28	19	28	44	.06	23	18	26	42	.03	L	17	25	39
	240	.11	31	21	29	45	.07	25	20	28	43	.03	20	18	26	40
	260	.13	33	22	31	46	.08	28	21	29	44	.04	23	20	27	41
	280	.15	35	24	32	47	.09	30	23	31	45	.05	25	21	29	42
	300	.17	38	24	34	48	.11	32	23	32	46	.05	27	22	30	43
	325	.20	40	25	35	49	.13	34	24	33	47	.06	29	23	31	44
	350	.22	42	27	36	50	.15	36	25	34	48	.08	32	24	32	45
	375	.26	44	29	37	52	.17	38	27	35	49	.09	34	25	33	46
400	.30	46	30	38	54	.20	40	28	36	50	.10	36	26	33	47	
425						.22	42	29	37	51	.11	37	27	35	48	
450						.25	44	29	37	52	.13	39	27	35	49	
475						.29	46	30	38	53	.14	41	29	36	50	
500						.32	47	30	38	53	.16	42	29	37	51	

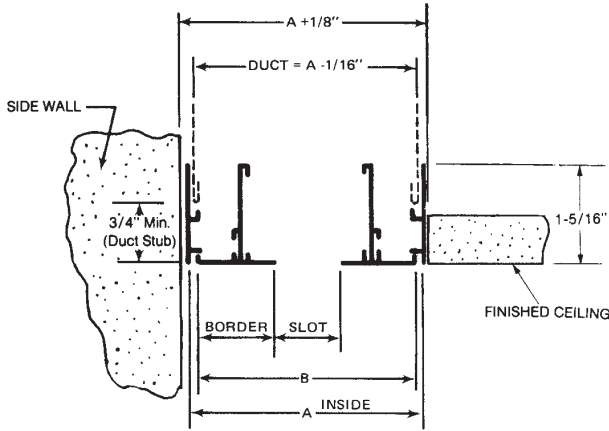
**Notes on Performance Data**

- Performance data is based on tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.
- Actual performance in the field may vary.
- Tests were conducted in isothermal conditions.
- Sound levels are based on a room absorption of 10 db re 10<sup>-12</sup> watts.

**Notes on Units of Measure Used**

- Air flow is given in cubic feet per minute (CFM).
- Static Pressure is given in inches of water (w.g.).
- Throws are given in feet to terminal velocities of 150, 100 and 50 fpm, respectively.
- L indicates an NC of less than 20.

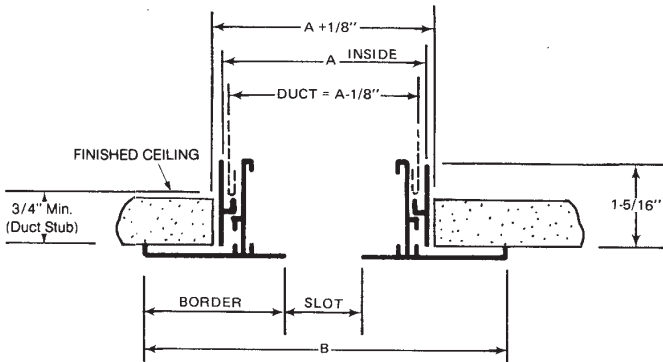
Mounting Frame Option No. 1



Model: CH <sup>3</sup> B\*\*\*\* <sup>9</sup>

Border	Slot Size	Dim.	No. of Slots							
			1	2	3	4	5	6	7	8
13/16	1/2	A	2 3/16	3 1/2	4 13/16	6 1/8	7 7/16	8 3/4	10 1/16	11 3/8
		B	2 1/8	3 7/16	4 3/4	6 1/16	7 3/8	8 11/16	10	11 5/16
	3/4	A	2 7/16	4	5 9/16	7 1/8	8 11/16	10 1/4	11 13/16	13 3/8
		B	2 3/8	3 15/16	5 1/2	7 1/16	8 5/8	10 3/16	11 3/4	13 5/16
	1	A	NOT AVAILABLE							
		B	NOT AVAILABLE							
1 1/8	1/2	A	2 13/16	4 1/8	5 7/16	6 3/4	8 1/16	9 3/8	10 11/16	12
		B	2 3/4	4 1/16	5 3/8	6 11/16	8	9 5/16	10 5/8	11 15/16
	3/4	A	3 1/16	4 5/8	6 3/16	7 3/4	9 5/16	10 7/8	12 7/16	14
		B	3	4 9/16	6 1/8	7 11/16	9 1/4	10 13/16	12 3/8	13 15/16
	1	A	3 5/16	5 3/8	7 1/16	9 1/2	11 9/16	13 5/8	15 11/16	17 3/4
		B	3 1/4	5 5/16	7 3/8	9 7/16	11 1/2	13 9/16	15 5/8	17 11/16

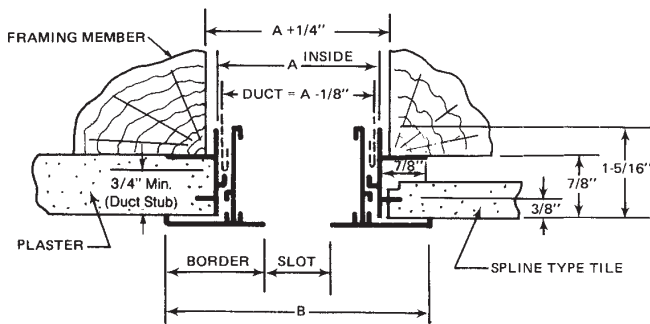
Mounting Frame Option No. 2



Model: CH <sup>3</sup> B\*\*\*\* <sup>9</sup>

Border	Slot Size	Dim.	No. of Slots							
			1	2	3	4	5	6	7	8
13/16	1/2	A	1 3/4	3 1/16	4 3/8	5 11/16	7	8 5/16	9 5/8	10 15/16
		B	2 1/8	3 7/16	4 3/4	6 1/16	7 3/8	8 11/16	10	11 5/16
	3/4	A	2	3 9/16	5 1/8	6 11/16	8 1/4	9 13/16	11 3/8	12 15/16
		B	2 3/8	3 15/16	5 1/2	7 1/16	8 5/8	10 3/16	11 3/4	13 5/16
	1	A	NOT AVAILABLE							
		B	NOT AVAILABLE							
1 1/8	1/2	A	1 3/4	3 1/16	4 3/8	5 11/16	7	8 5/16	9 5/8	10 15/16
		B	2 3/4	4 1/16	5 3/8	6 11/16	8	9 5/16	10 5/8	11 15/16
	3/4	A	2	3 9/16	5 1/8	6 11/16	8 1/4	9 13/16	11 3/8	12 15/16
		B	3	4 9/16	6 1/8	7 11/16	9 1/4	10 13/16	12 3/8	13 15/16
	1	A	2 1/2	4 9/16	6 5/8	8 1/16	10 3/4	12 13/16	14 7/8	16 15/16
		B	3 1/4	5 5/16	7 3/8	9 7/16	11 1/2	13 9/16	15 5/8	17 11/16

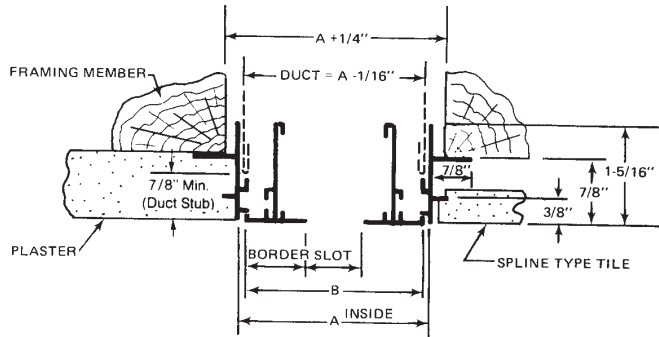
Mounting Frame Option No. 3



Model: CH <sup>3</sup> B\*\*\*\* <sup>9</sup>

Border	Slot Size	Dim.	No. of Slots							
			1	2	3	4	5	6	7	8
13/16	1/2	A	1 3/4	3 1/16	4 3/8	5 11/16	7	8 5/16	9 5/8	10 15/16
		B	2 1/8	3 7/16	4 3/4	6 1/16	7 3/8	8 11/16	10	11 5/16
	3/4	A	2	3 9/16	5 1/8	6 11/16	8 1/4	9 13/16	11 3/8	12 15/16
		B	2 3/8	3 15/16	5 1/2	7 1/16	8 5/8	10 3/16	11 3/4	13 5/16
	1	A	NOT AVAILABLE							
		B	NOT AVAILABLE							
1 1/8	1/2	A	1 3/4	3 1/16	4 3/8	5 11/16	7	8 5/16	9 5/8	10 15/16
		B	2 3/4	4 1/16	5 3/8	6 11/16	8	9 5/16	10 5/8	11 15/16
	3/4	A	2	3 9/16	5 1/8	6 11/16	8 1/4	9 13/16	11 3/8	12 15/16
		B	3	4 9/16	6 1/8	7 11/16	9 1/4	10 13/16	12 3/8	13 15/16
	1	A	2 1/2	4 9/16	6 5/8	8 1/16	10 3/4	12 13/16	14 7/8	16 15/16
		B	3 1/4	5 5/16	7 3/8	9 7/16	11 1/2	13 9/16	15 5/8	17 11/16

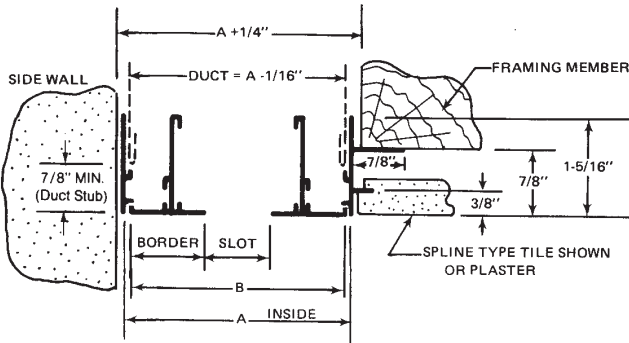
Mounting Frame Option No. 4



Model: CH <sup>3</sup> B\*\*\*\* <sup>9</sup>

Border	Slot Size	Dim.	No. of Slots							
			1	2	3	4	5	6	7	8
13/16	1/2	A	2 3/16	3 1/2	4 13/16	6 1/8	7 7/16	8 3/4	10 1/16	11 3/8
		B	2 1/8	3 7/16	4 3/4	6 1/16	7 3/8	8 11/16	10	11 5/16
	3/4	A	2 7/16	4	5 9/16	7 1/8	8 11/16	10 1/4	11 13/16	13 3/8
		B	2 3/8	3 15/16	5 1/2	7 1/16	8 5/8	10 3/16	11 3/4	13 5/16
	1	A	NOT AVAILABLE							
		B	NOT AVAILABLE							
1 1/8	1/2	A	2 13/16	4 1/8	5 7/16	6 3/4	8 1/16	9 3/8	10 11/16	12
		B	2 3/4	4 1/16	5 3/8	6 11/16	8	9 5/16	10 5/8	11 15/16
	3/4	A	3 1/16	4 5/8	6 3/16	7 3/4	9 5/16	10 7/8	12 7/16	14
		B	3	4 9/16	6 1/8	7 11/16	9 1/4	10 13/16	12 3/8	13 15/16
	1	A	3 5/16	5 3/8	7 1/16	9 1/2	11 9/16	13 5/8	15 11/16	17 3/4
		B	3 1/4	5 5/16	7 3/8	9 7/16	11 1/2	13 9/16	15 5/8	17 11/16

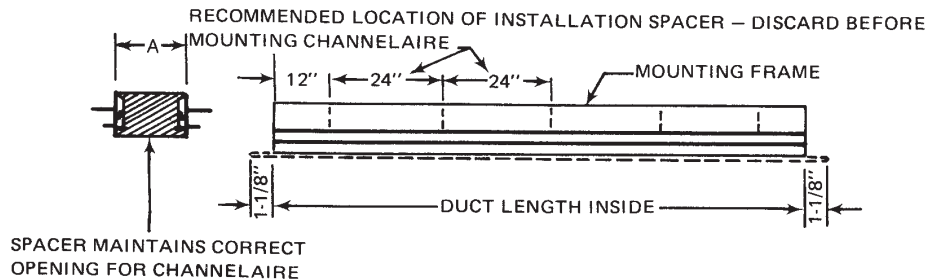
Mounting Frame Option No. 5



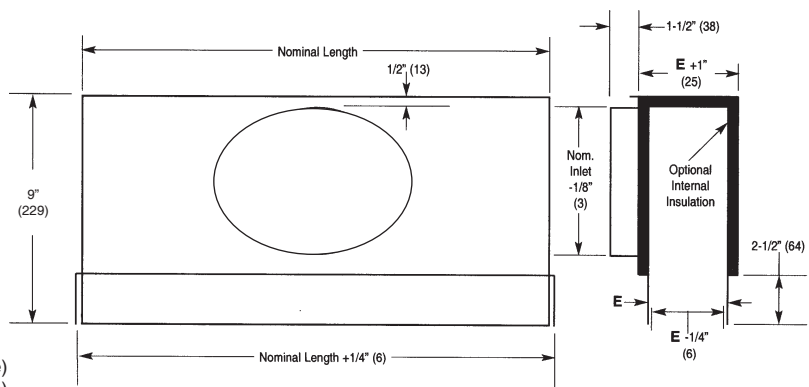
Model: CH <sup>3</sup> B\*\*\*\* <sup>9</sup>

Border	Slot Size	Dim.	No. of Slots							
			1	2	3	4	5	6	7	8
13/16	1/2	A	2 3/16	3 1/2	4 13/16	6 1/8	7 7/16	8 3/4	10 1/16	11 3/8
		B	2 1/8	3 7/16	4 3/4	6 1/16	7 3/8	8 11/16	10	11 5/16
	3/4	A	2 7/16	4	5 9/16	7 1/8	8 11/16	10 1/4	11 13/16	13 3/8
		B	2 3/8	3 15/16	5 1/2	7 1/16	8 5/8	10 3/16	11 3/4	13 5/16
	1	A	NOT AVAILABLE							
		B	NOT AVAILABLE							
1 1/8	1/2	A	2 13/16	4 1/8	5 7/16	6 3/4	8 1/16	9 3/8	10 11/16	12
		B	2 3/4	4 1/16	5 3/8	6 11/16	8	9 5/16	10 5/8	11 15/16
	3/4	A	3 1/16	4 5/8	6 3/16	7 3/4	9 5/16	10 7/8	12 7/16	14
		B	3	4 9/16	6 1/8	7 11/16	9 1/4	10 13/16	12 3/8	13 15/16
	1	A	3 5/16	5 3/8	7 1/16	9 1/2	11 9/16	13 5/8	15 11/16	17 3/4
		B	3 1/4	5 5/16	7 3/8	9 7/16	11 1/2	13 9/16	15 5/8	17 11/16

Typical Mounting Frame Installation Detail



SPACER MAINTAINS CORRECT OPENING FOR CHANNELAIRE



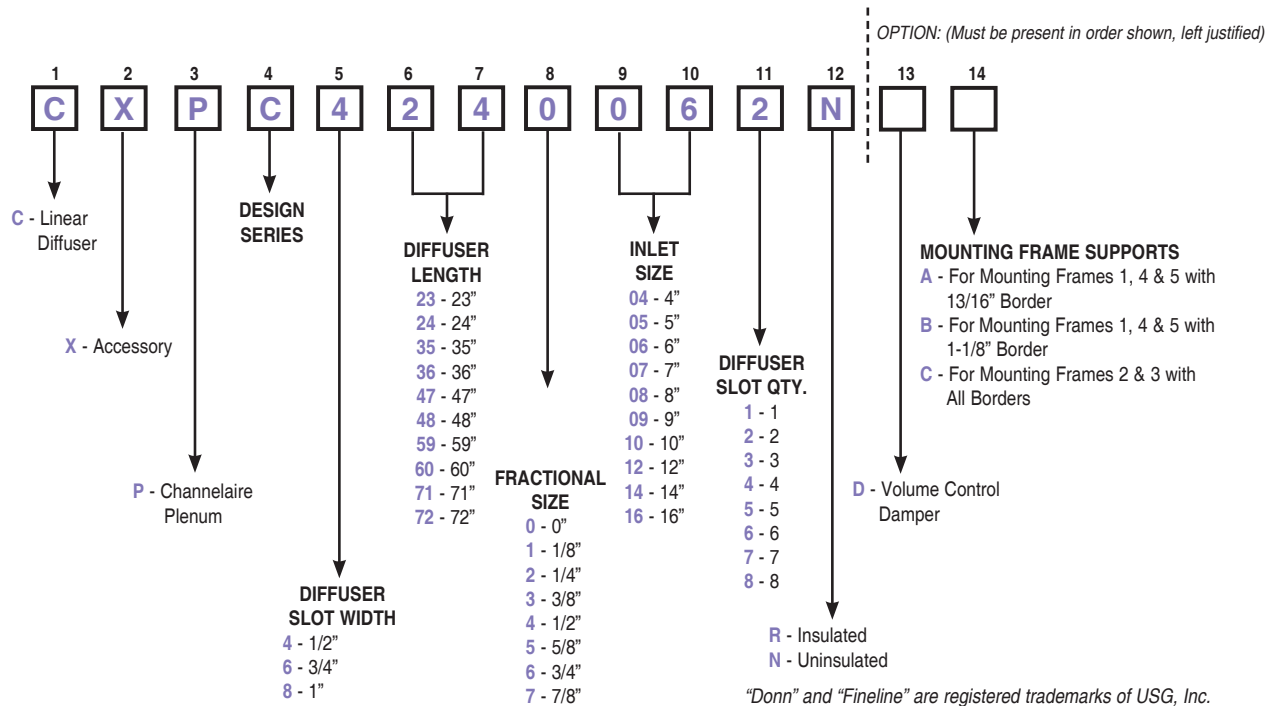
**Model CXPC 4** (For use with 1/2" (13) Slot Channelaire)  
**Model CXPC 6** (For use with 3/4" (19) Slot Channelaire)  
**Model CXPC 8** (For use with 1" (25) Slot Channelaire)

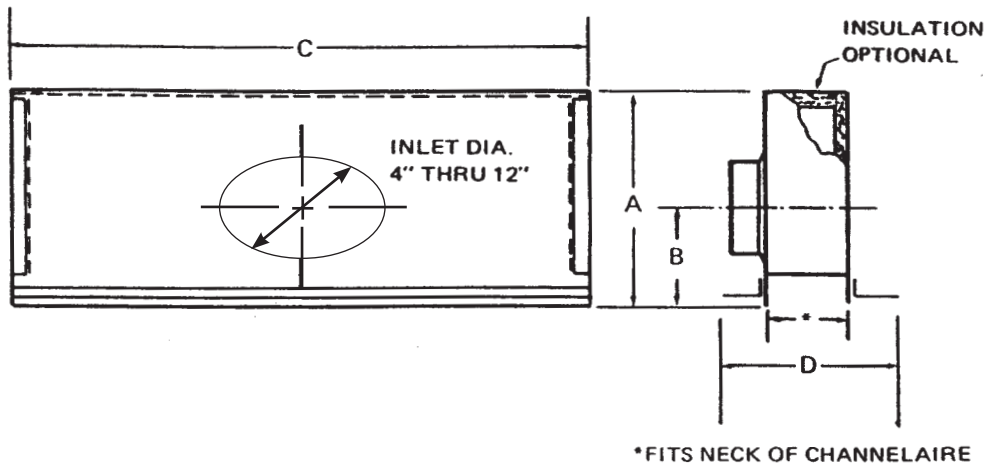
INLET LOCATION — "E" DIMENSIONS							
<b>04 (102)</b>	<b>05 (127)</b>	<b>06 (152)</b>	<b>07 (178)</b>	<b>08 (203)</b>	<b>09 (229)</b>	<b>10 (254)</b>	<b>12 (305)</b>
2-1/4" (57)	2-3/4" (70)	3-1/4" (83)	3-3/4" (95)	4-1/4" (108)	4-3/4" (121)	5-1/4" (133)	6-1/4" (159)

Nominal Inlet Size	A	B	Listed Length of Plenum in Inches (Millimeters)									
			"C" Dimension									
			23 (584)	24 (610)	35 (889)	36 (914)	47 (1194)	48 (1219)	59 (1499)	60 (1524)	71 (1803)	72 (1829)
04 (102) - 05 (127)	12-1/4 (311)	7-1/4 (184)	22-7/8 (581)	23-7/8 (606)	34-7/8 (886)	35-7/8 (911)	46-7/8 (1191)	47-7/8 (1216)	58-7/8 (1495)	59-7/8 (1521)	70-7/8 (1800)	71-7/8 (1823)
06 (152) - 07 (178)												
08 (203)												
09 (229) - 10 (254)	14-1/4 (362)	8-1/4 (210)										
12 (305)	16-1/4 (413)	9-1/4 (235)										

Model	No. of Slots of Channelaire "D" Dimensions Listed in Inches (Millimeters)							
	1	2	3	4	5	6	7	8
<b>CXPC 4</b>	1-3/8 (35)	2-11/16 (68)	4 (102)	5-5/16 (135)	6-5/8 (168)	7-15/16 (202)	9-1/4 (235)	10-9/16 (268)
<b>CXPC 6</b>	1-5/8 (41)	3-3/16 (81)	4-3/4 (121)	6-5/16 (160)	7-7/8 (200)	9-7/16 (240)	11 (279)	12-9/16 (319)
<b>CXPC 8</b>	2-1/8 (54)	4-3/16 (106)	6-1/4 (159)	8-5/16 (211)	10-3/4 (273)	12-7/16 (316)	14-1/2 (368)	16-9/16 (421)

▼ Model Numbering System - PLENUMS



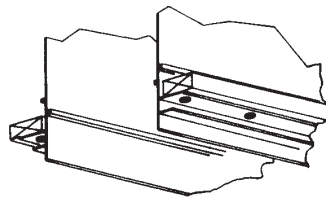
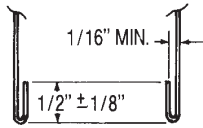


\*FITS NECK OF CHANNELAIRE

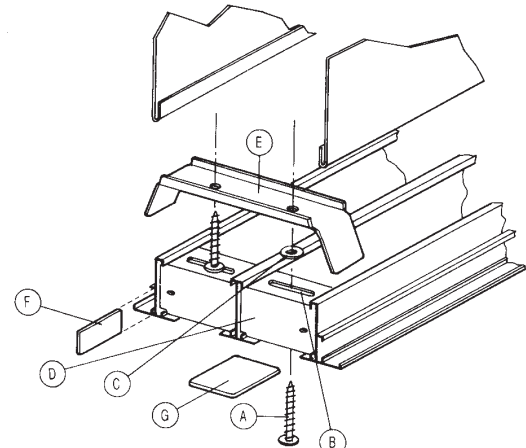
Nominal Inlet Size	A	B	Listed Length of Plenum "C" Dimension									
			23	24	35	36	47	48	59	60	71	72
04 - 05 06 - 07 08	9	7-1/4	22-3/4	23-3/4	34-3/4	35-3/4	46-3/4	47-3/4	58-3/4	59-3/4	70-3/4	71-3/4
09 - 10	9	8-1/4										
12	9	9-1/4										

"D" Dimension										
Option 14	Channelaire		Slot Quantity							
	Border	Slot	1	2	3	4	5	6	7	8
A	13/16	1/2	N/A	3-7/16	4-3/4	6-1/16	7-3/8	8-11/16	10	11-5/16
		3/4	N/A	3-15/16	5-1/2	7-1/16	8-5/8	10-3/16	11-3/4	13-15/16
		1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B	1-1/8	1/2	2-3/4	4-1/16	5-3/8	6-11/16	8	9-5/16	10-5/8	11-15/16
		3/4	3	4-9/16	6-1/8	7-11/16	9-1/4	10-13/16	12-3/8	13-15/16
		1	3-1/4	5-5/16	7-3/8	9-7/16	11-1/2	13-9/16	15-5/8	17-11/16

"D" Dimension										
Option 14	Channelaire		Slot Quantity							
	Border	Slot	1	2	3	4	5	6	7	8
C	13/16	1/2	N/A	3	4-5/16	5-5/8	6-15/16	8-1/4	9-9/16	10-7/8
		3/4	N/A	3-1/2	5-1/16	6-5/8	8-3/16	9-3/4	11-5/16	12-7/8
		1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C	1-1/8	1/2	N/A	3	4-5/16	5-5/8	6-15/16	8-1/4	9-9/16	10-7/8
		3/4	N/A	3-1/2	5-1/16	6-5/8	8-3/16	9-3/4	11-5/16	12-7/8
		1	N/A	4-1/2	6-9/16	8-5/8	10-11/16	12-3/4	14-13/16	16-7/8



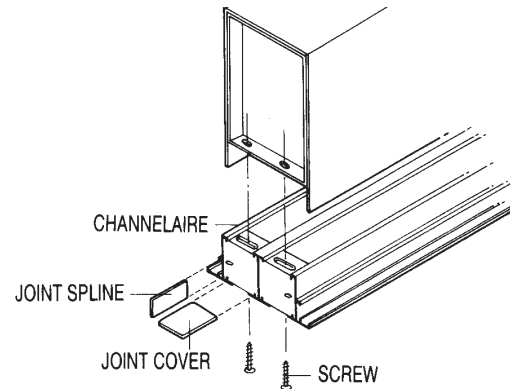
1. Hem duct as shown should be installed 3/4" above finished ceiling.
2. If mounting frame is used, fasten it to ceiling.
3. Place screws 'A' through slot 'B' and turn retaining washers 'C' on to screws until threads are completely extended above end bracket 'D'.
4. Engage two threads of each screw in mounting bracket 'E'.
5. Place diffuser section in duct opening and insert mounting brackets 'E' into duct hem.
6. Install joint splines 'F' to align butted sections.
7. Draw diffuser into place with screws.
8. Snap joint cover 'G' into slot under bracket 'D'.



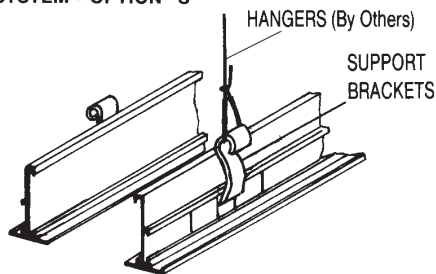
For butted units  
1/32" space must be provided  
at joints to allow for thermal expansion

## PLENUM

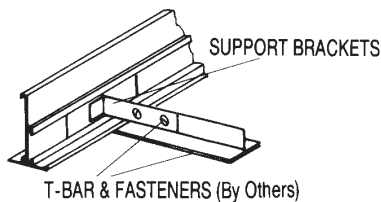
1. Plenums should be installed a minimum of 3/4" above the finished ceiling.
2. Plenums must be the same listed length as the diffuser section they are to be mounted on.
3. To attach the plenum, insert the screws through the end bracket in the outside slots of the Channelaire.
4. The screws will line up with pierced holes in the plenum ends.
5. Tighten screws until the diffuser is tight to the ceiling.



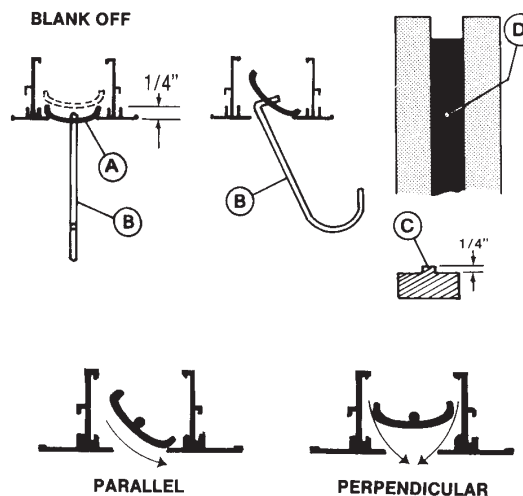
## SUPPORT BRACKETS FOR SUSPENSION SYSTEM - OPTION "S"



## SUPPORT BRACKETS FOR T-BAR - OPTION "T"



## PATTERN ADJUSTMENT



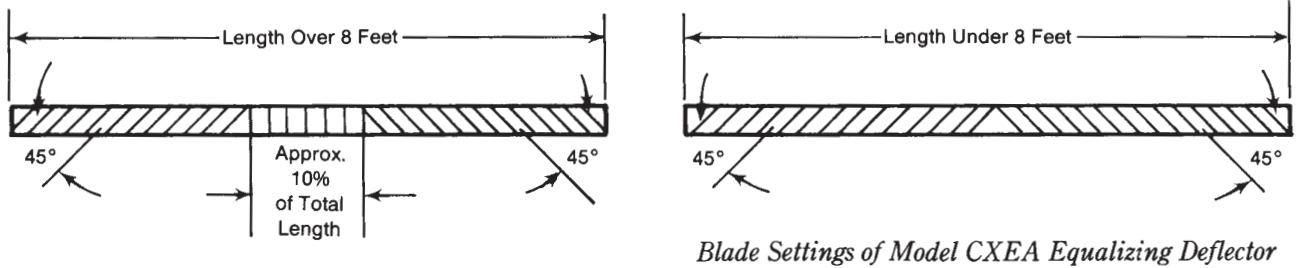
### Parallel Discharge

1. Set pattern control 'A' in neutral attitude and position at 1/4" from face of diffuser. (This can be done by pulling to full closed with furnished hook 'B', and then using suggested template 'C', push pattern control into position at each adjustment hole 'D'.)
2. Insert tip of hook halfway into hole and rotate control in desired direction until one side of slot is completely closed. This position will result in an opening of 3/8" on which all catalog data is based.

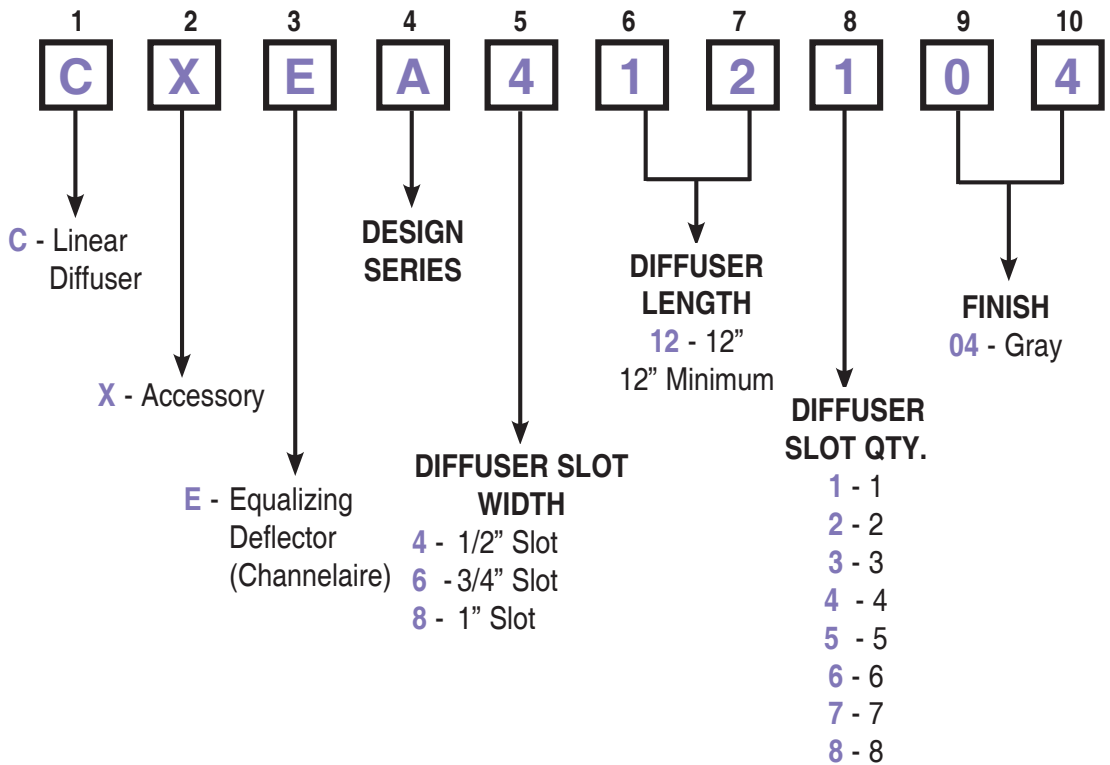
### Perpendicular Discharge

1. Same as for parallel discharge except position of pattern control is 3/8" from diffuser face.

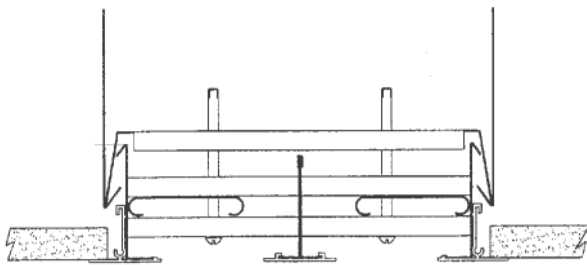
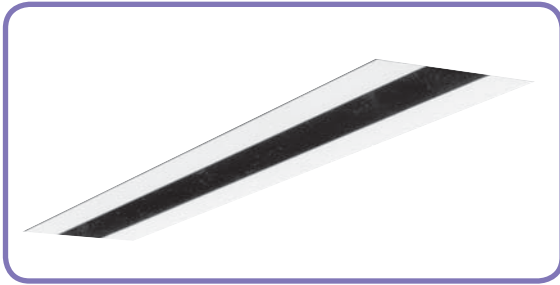
The Model CXEA equalizing deflector, installed directly above the Channelaire, will increase the spread from discontinuous diffusers, or from continuous diffusers whose length is less than 80% of the wall-to-wall distance.



**▼ MODEL NUMBERING SYSTEM — Equalizing Deflector**







**Application**

Wide slot linear diffusers are used where architectural considerations require a linear diffuser, but the air flow is higher than can be handled by narrower slot units. The standard deflector is best used in ceilings where the design requires the air envelope to proceed along or near the ceiling.

**Standard Features**

- Extruded aluminum frame is attractive and strong.
- Slot width options:  
1" 1-1/2" 2" 2-1/2" 3"
- Available in 1 or 2 slots as standard.
- Minimum length is 12"
- Maximum single unit length is 72" (6'). Units can be joined for continuous runs.
- Standard color is #37 bright white face with black interior.
- Sliding bar type pattern controls.
- Designed for ceiling horizontal and vertical throw applications.
- Choice of the following mounting methods:  
Surface Mount  
Surface Mount, Concealed Face  
Suspended Ceiling Mount

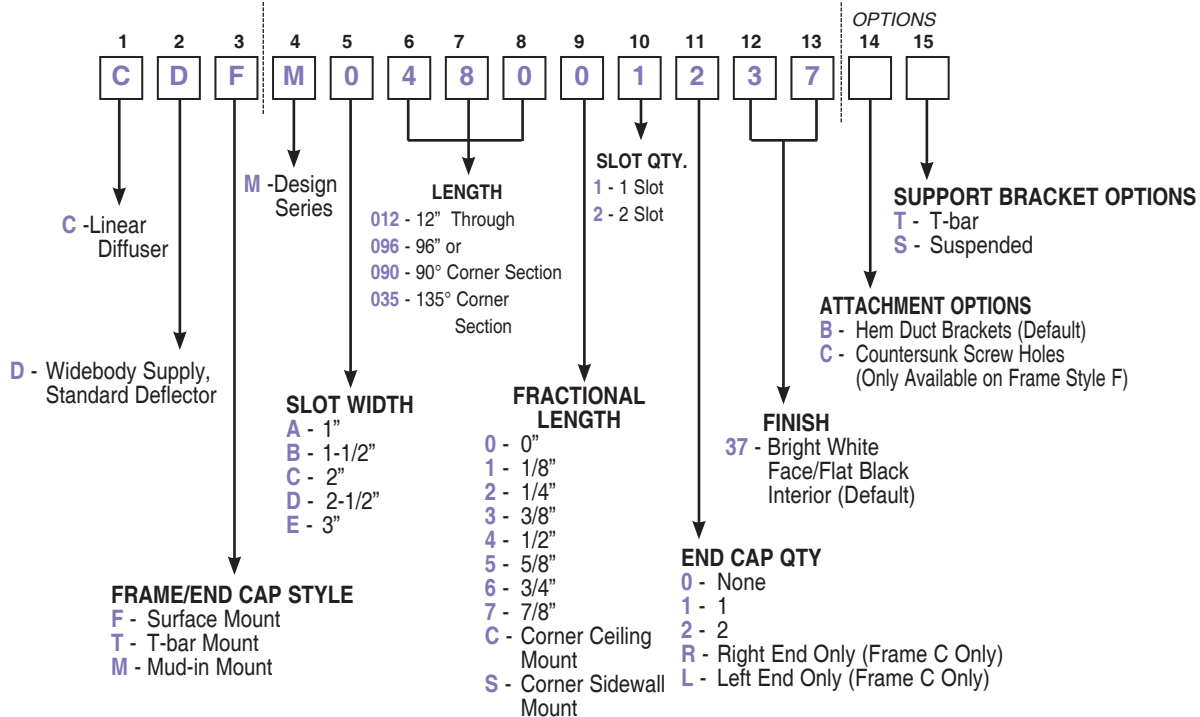
**Optional Features**

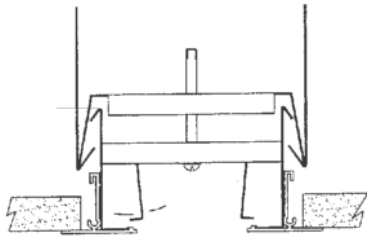
- Screw holes in the face (Opt. C) provide added versatility in mounting (p. A170).
- Units can be curved for mounting in flat ceiling along curved wall or in curved wall along flat ceiling.

**Accessories**

- The supply plenum is model CXPC (p. A171).

**Model Numbering System**





**Application**

Wide slot linear diffusers are used where architectural considerations require a linear diffuser, but the air flow is higher than can be handled by narrower slot units. The high bay deflector is best used in ceilings where the design requires the air envelope to proceed vertically a long distance to reach the occupied zone, or in a wall where the required discharge direction is horizontal.

**Standard Features**

- Extruded aluminum frame is attractive and strong.
- Slot width options:  
1"    1-1/2"    2"    2-1/2"    3"
- Available in 1 or 2 slots as standard.
- Minimum length is 12"
- Maximum single unit length is 72" (6'). Units can be joined for continuous runs.
- Standard color is #37 bright white face with black interior.
- Direct throw hinged pattern control.
- Designed for wall or vertical throw applications.
- Choice of the following mounting methods:  
Surface Mount  
Surface Mount, Concealed Face  
Suspended Ceiling Mount

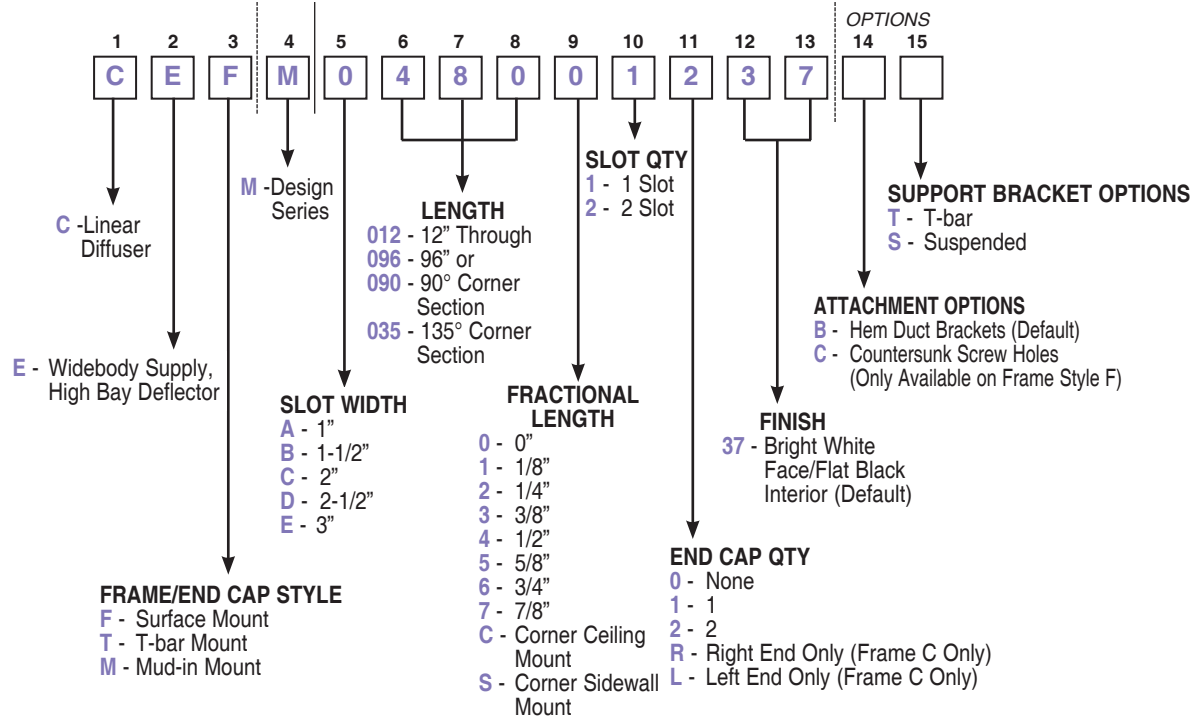
**Optional Features**

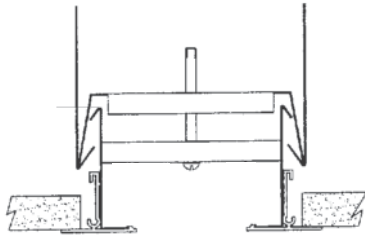
- Screw holes in the face (Opt. C) provide added versatility in mounting (p. A170).
- Units can be curved for mounting in flat ceiling along curved wall or in curved wall along flat ceiling.

**Accessories**

- The supply plenum is model CXPC (p. A171).

**Model Numbering System**





**Application**

Wide slot linear diffusers are used where architectural considerations require a linear diffuser, but the air flow is higher than can be handled by narrower slot units. The return unit with no deflector is used by itself for ducted or non-ducted return, or in series with supply units to provide a continuous run of linear that fulfills both supply and return functions.

**Standard Features**

- Extruded aluminum frame is attractive and strong.
- Slot width options:  
1"    1-1/2"    2"    2-1/2"    3"
- Available in 1 or 2 slots as standard.
- Minimum length is 12"
- Maximum single unit length is 72" (6'). Units can be joined for continuous runs.
- Standard color is #37 bright white face with black interior.
- Choice of the following mounting methods:  
Surface Mount  
Surface Mount, Concealed Face  
Suspended Ceiling Mount

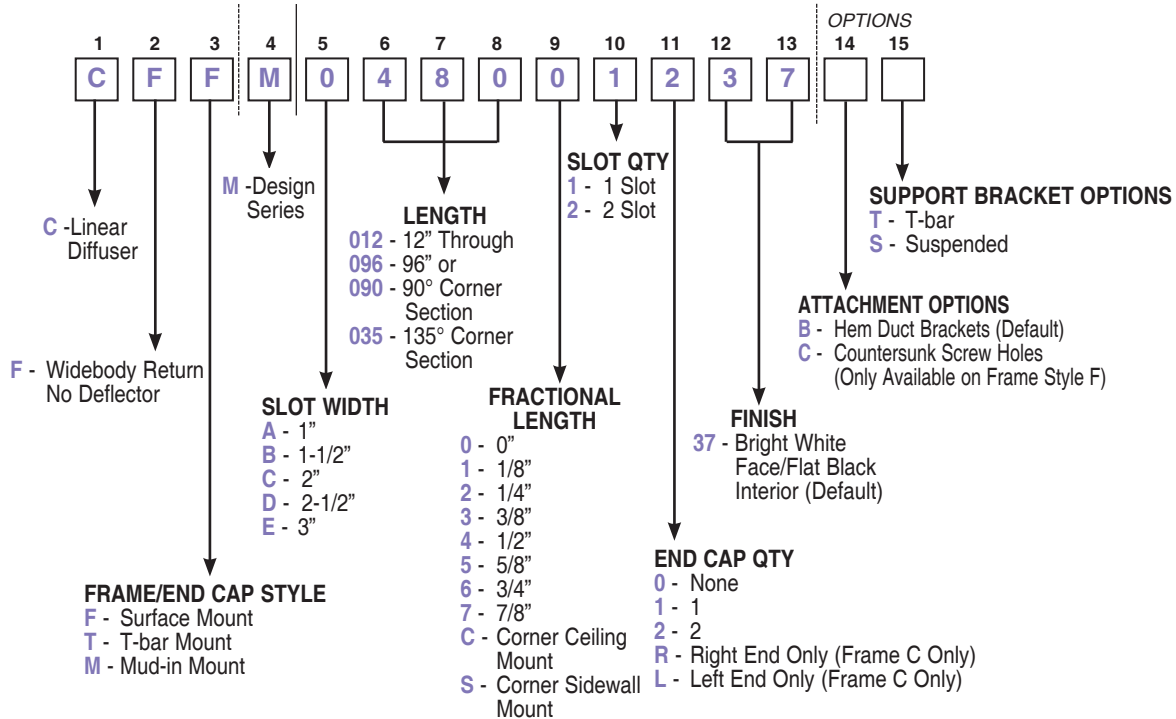
**Optional Features**

- Screw holes in the face (Opt. C) provide added versatility in mounting (p. A170).
- Units can be curved for mounting in flat ceiling along curved wall or in curved wall along flat ceiling.

**Accessories**

- The recommended plenum is model CXPC (p. A171).

**Model Numbering System**

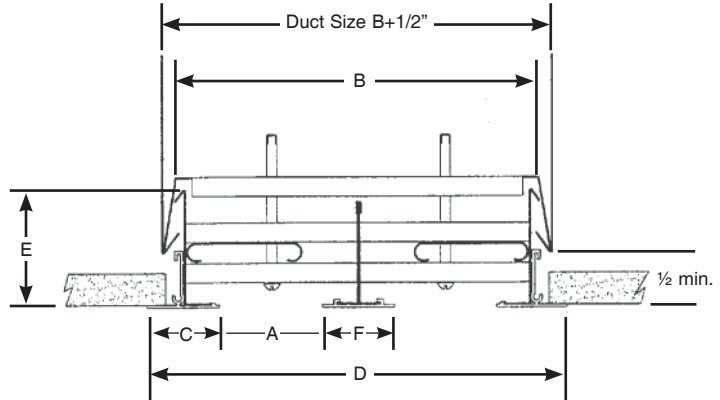
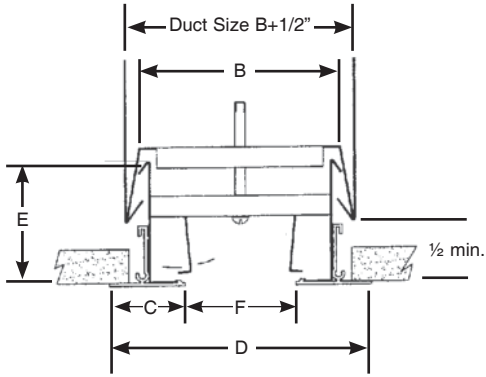


**Application:**

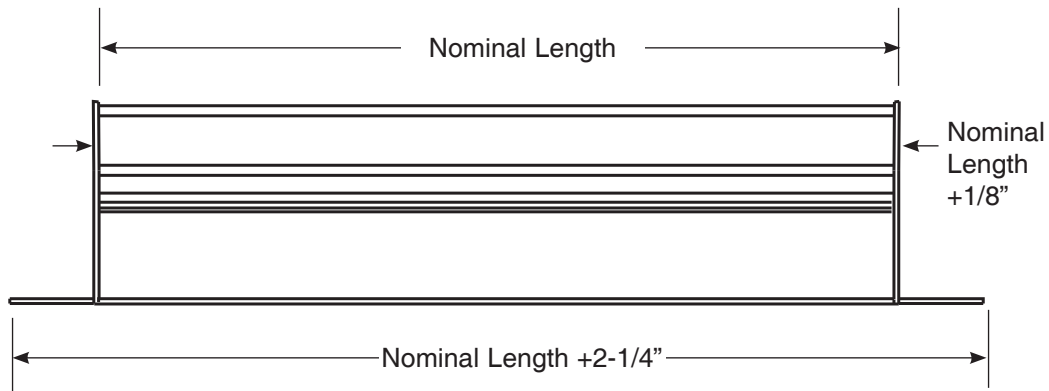
This mounting is used in a wall or ceiling where the flange covers the opening, and is visible. It is the most efficient mounting for plaster ceilings or walls because it allows the plenum and drywall to be installed before the diffuser.

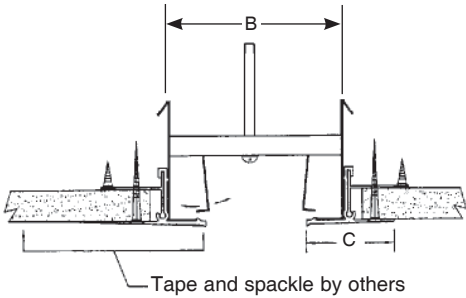
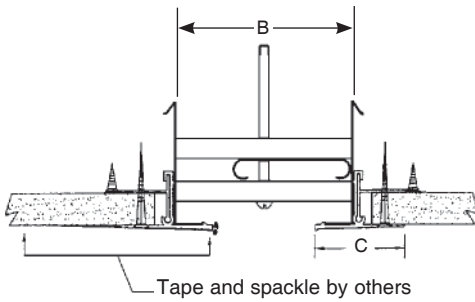
**Notes:**

- Specify frame style "F".



Dim.	Description	1-Slot Slot Width (A)					2-Slot Slot Width (A)				
		1"	1-1/2"	2"	2-1/2"	3"	1"	1-1/2"	2"	2-1/2"	3"
B	Neck O. D.	2-5/8"	3-1/8"	3-5/8"	5-1/2"	6"	5-1/8"	6-1/8"	7-1/8"	10-5/8"	11-5/8"
C	Flange Width	1-3/8"	1-3/8"	1-3/8"	2-1/16"	2-1/16"	1-3/8"	1-3/8"	1-3/8"	2-1/16"	2-1/16"
D	Face O. D.	3-3/4"	4-1/4"	4-3/4"	6-5/8"	7-1/8"	6-1/8"	7-1/8"	8-1/8"	11-3/4"	12-3/4"
E	Unit Height	2-1/4"	2-1/4"	2-1/4"	3"	3"	2-1/4"	2-1/4"	2-1/4"	3"	3"
F	Center Flange	---	---	---	---	---	1-3/8"	1-3/8"	1-3/8"	2-5/8"	2-5/8"





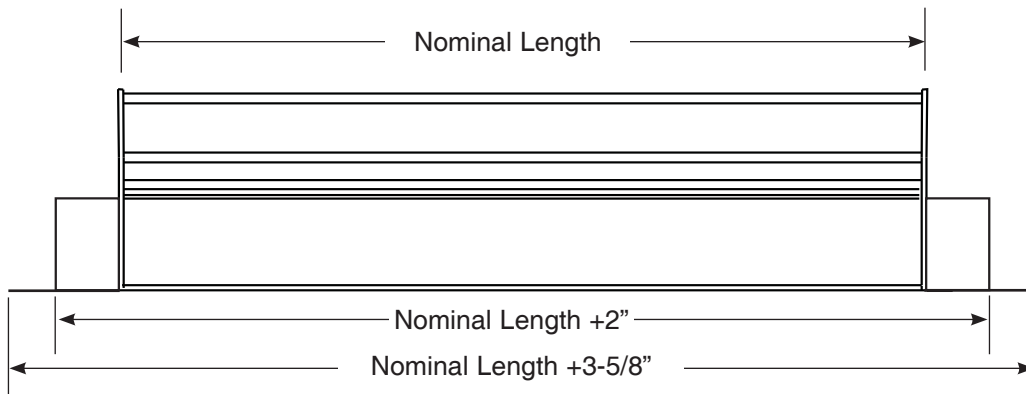
**Application:**

This mounting is used in a plaster ceiling or wall where the maximum concealment of the frame is desired. When installation is finished, only a slight line along the edge of the slot is visible.

**Notes:**

- Specify frame/end cap style "M".
- As with other models, when used with Carnes supply plenum CXPC, the plenum and drywall may be mounted before the diffuser is installed, but extra attention must be paid to job coordination. This diffuser may be installed after the drywall is installed, but must be installed before mudding.
- Opening should be nominal length +2".

Dim. Description	1-Slot Slot Width (A)					2-Slot Slot Width (A)				
	1"	1-1/2"	2"	2-1/2"	3"	1"	1-1/2"	2"	2-1/2"	3"
B Neck O. D.	2-3/4"	3-1/4"	3-3/4"	Contact Factory		Not recommended. Contact Factory for details.				
C Flange Width	1-5/8"	1-5/8"	1-5/8"	Contact Factory						
D Face O. D.	4-3/8"	4-7/8"	5-3/8"	Contact Factory						
E Unit Height	2-1/4"	2-1/4"	2-1/4"	Contact Factory						
F Center Flange	- - -	- - -	- - -	- - -	- - -					

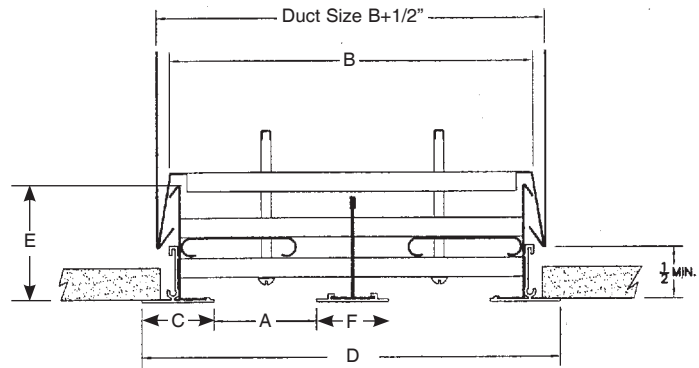
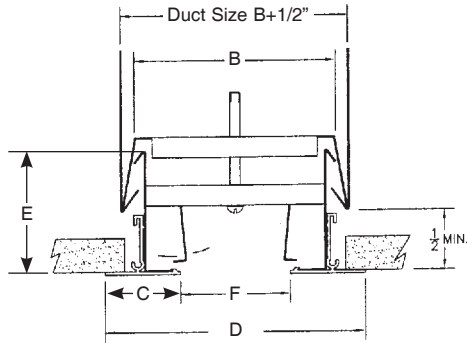


**Application:**

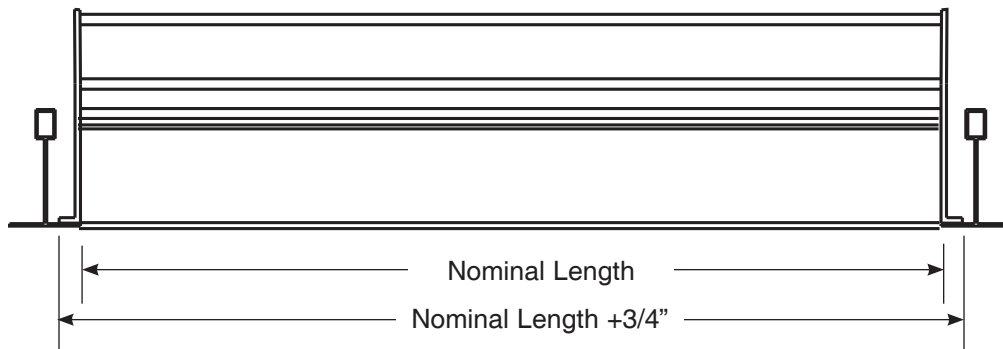
This mounting is used in a suspended ceiling where the grid system is 15/16" flat-face T-bar.

**Notes:**

- Specify frame/end cap style "T".



Dim. Description	1-Slot Slot Width (A)					2-Slot Slot Width (A)				
	1"	1-1/2"	2"	2-1/2"	3"	1"	1-1/2"	2"	2-1/2"	3"
B Neck O. D.	2-5/8"	3-1/8"	3-5/8"	5-1/2"	6"	5-1/8"	6-1/8"	7-1/8"	10-5/8"	11-5/8"
C Flange Width	1-3/8"	1-3/8"	1-3/8"	2-1/16"	2-1/16"	1-3/8"	1-3/8"	1-3/8"	2-1/16"	2-1/16"
D Face O. D.	3-3/4"	4-1/4"	4-3/4"	6-5/8"	7-1/8"	6-1/8"	7-1/8"	8-1/8"	11-3/4"	12-3/4"
E Unit Height	2-1/4"	2-1/4"	2-1/4"	3"	3"	2-1/4"	2-1/4"	2-1/4"	3"	3"
F Center Flange	---	---	---	---	---	1-3/8"	1-3/8"	1-3/8"	2-5/8"	2-5/8"



**Correction Factors for Lengths Other than Shown.**

Performance data is given for a 4-foot long diffuser. When other lengths are used, apply these corrections to the table data on the next page.

Length	2'	4'	6'	8'	10'	12'
NC/RC Correction (Add)	-2	0	+2	+3	+5	+6
Throw Correction (Multiply)	0.9	1.0	1.1	1.2	1.3	1.4

**Correction Factors for Vertical Discharge Adjustment of Model CD.**

Performance data is given for horizontal discharge. When the deflector is set for vertical discharge, apply these corrections to the table data on the next page.

NC/RC Correction (Add)	-5
Throw Correction (Multiply)	1.3

**Correction Factors for Cold Air Performance.**

Performance data is based on tests conducted in isothermal conditions. When 20° ΔT cooling conditions exist, horizontal throw (assuming the presence of a ceiling) is reduced by approximately 35%. To get horizontal throws corrected for 20° ΔT cooling conditions, multiply the table throw data by .65.

This correction does not apply in vertical discharge situations.

One Slot

1"	<b>Air Flow per foot - - &gt;</b>	<b>20</b>	<b>40</b>	<b>60</b>	<b>80</b>	<b>100</b>	<b>120</b>	<b>140</b>
	Slot							
	Static Pressure	0.014	0.056	0.125	0.223	0.352	0.508	0.699
	Sound (NC/RC)	--/--	21/19H	31/29N	39/36N	46/44N	51/51N	59/57N
	Throw	3-5-8	9-12-17	13-16-23	15-18-26	17-21-30	19-23-33	20-25-36
1-1/2"	<b>Air Flow per foot - - &gt;</b>	<b>30</b>	<b>45</b>	<b>60</b>	<b>75</b>	<b>90</b>	<b>105</b>	<b>120</b>
	Slot							
	Static Pressure	0.020	0.046	0.082	0.130	0.188	0.258	0.338
	Sound (NC/RC)	11/10H	19/18H	26/24H	32/30N	37/34N	42/41N	46/45N
	Throw	5-8-13	11-13-19	13-15-22	14-17-25	16-20-28	17-21-30	18-22-32
2"	<b>Air Flow per foot - - &gt;</b>	<b>30</b>	<b>50</b>	<b>70</b>	<b>90</b>	<b>110</b>	<b>130</b>	<b>150</b>
	Slot							
	Static Pressure	0.015	0.042	0.083	0.138	0.208	0.297	0.398
	Sound (NC/RC)	10/--	20/18N	28/27N	34/33N	40/38N	45/43N	49/48N
	Throw	5-7-12	16-20-29	14-17-24	15-19-27	16-20-29	18-22-32	16-25-35
2-1/2"	<b>Air Flow per foot - - &gt;</b>	<b>30</b>	<b>55</b>	<b>80</b>	<b>105</b>	<b>130</b>	<b>155</b>	<b>180</b>
	Slot							
	Static Pressure	0.011	0.037	0.081	0.144	0.222	0.321	0.431
	Sound (NC/RC)	--/--	18/17H	26/24H	34/33N	40/39N	45/44N	49/48N
	Throw	3-6-10	10-14-20	14-18-25	16-20-28	18-22-32	19-24-34	21-26-37
3"	<b>Air Flow per foot - - &gt;</b>	<b>30</b>	<b>60</b>	<b>90</b>	<b>120</b>	<b>150</b>	<b>180</b>	<b>210</b>
	Slot							
	Static Pressure	0.008	0.036	0.084	0.153	0.246	0.356	0.497
	Sound (NC/RC)	--/--	15/13H	24/22H	31/29H	37/36N	42/41N	46/45N
	Throw	2-5-8	11-14-20	14-17-25	17-20-29	19-23-33	20-25-36	22-27-39

**Notes on Performance Data**

- Performance data is based on tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.
- Actual performance in the field may vary.
- Tests were conducted in isothermal conditions.
- Sound levels are based on a room absorption of 10 db re 10<sup>-12</sup> watts.

**Notes on Units of Measure Used**

- Air flow is given in cubic feet per minute (CFM).
- Static Pressure is given in inches of water (w.g.).
- Sound data is given in both NC and RC. NC is the first with RC second, separated by a slash.
- Throws are given in feet to terminal velocities of 150, 100 and 50 fpm, respectively.