

TBDI6-HC

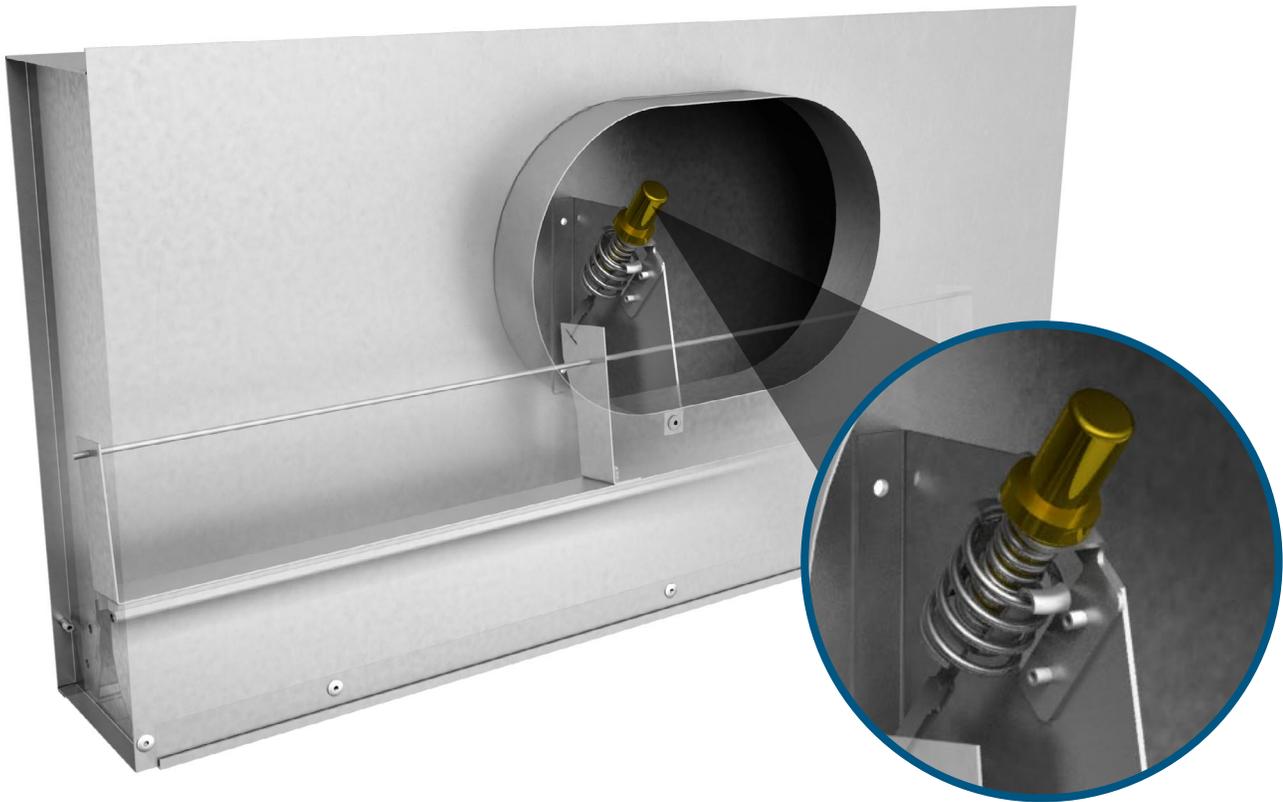
Thermally Powered Heat/Cool Changeover Diffuser



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Sizing a single diffuser for both heating and cooling applications is challenging, as differing supply temperatures have different buoyancies and vastly different throw distances. The TBDI6-HC uses a thermally powered wax actuator to address this issue; washing exterior spaces with a high velocity jet of air during heating, and minimizing drafts by switching to a horizontal throw pattern during cooling without power or internal electronic components.



*Wax actuator eliminates electronics,
significantly reducing maintenance
requirements*

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THERMAL POWERED PATTERN ADJUSTMENT

- + Through direct contact with the supply air, an internal wax actuator moves the pattern controller between the vertical heating slot and horizontal cooling slot.
- + The TBDI6-HC is suitable for virtually all applications with a room temperature operating range between 69°F and 81°F.
- + The aerodynamic extruded aluminum blade provides a tight, horizontal pattern during cooling, while the vertical slot uses a trim volume adjustment damper to ensure a strong vertical pattern during heating.

SIMPLE INSTALLATION AND MAINTENANCE

- + The TBDI6-HC is easy to install, with no external wiring or additional set up, simply place the unit on the ceiling grid and connect to the duct work.
- + With no internal electronics, maintenance is eliminated.

TYPICAL APPLICATIONS

The TBDI6-HC slot diffuser with heat/cool changeover is ideal for perimeter applications and is designed to provide optimal comfort and functionality in both heating and cooling seasons.

CONSTRUCTION

- + Module Length
 - 24 in.
 - 30 in.
 - 36 in.
 - 48 in.
 - 60 in.
- + Insulation
 - Internal coated fiberglass
 - Internal fiber free foam
 - External 1/2 in. aluminum foil backed



PERFORMANCE DATA

Unit Size	Air Pattern	Neck Velocity (fpm)	200	300	400	500	600	700	800	900	1000
		Velocity Pressure (in. w.g.)	0.002	0.006	0.010	0.016	0.022	0.031	0.040	0.050	0.062
24 in. Length 8 in. Oval Inlet	Horizontal Pattern	Flow Rate (cfm)	64	96	129	161	193	225	257		
		Total Pressure (in. w.g.)	0.035	0.076	0.132	0.203	0.289	0.389	0.503		
		Sound (NC)	-	-	22	29	34	39	43		
		Throw (ft)	3-7-14	7-10-18	9-14-21	12-16-23	14-18-25	16-19-27	17-21-29		
	Vertical Pattern	Flow Rate (cfm)	64	96	129	161	193				
		Total Pressure (in. w.g.)	0.051	0.113	0.197	0.304	0.434				
		Sound (NC)	-	20	28	34	40				
		Throw (ft)	5-10-16	10-14-19	13-16-23	15-18-25	16-19-28				
30 in. Length 8 in. Oval Inlet	Horizontal Pattern	Flow Rate (cfm)	64	96	129	161	193	225	257	289	
		Total Pressure (in. w.g.)	0.028	0.061	0.106	0.162	0.230	0.309	0.398	0.498	
		Sound (NC)	-	-	19	26	32	36	41	44	
		Throw (ft)	2-5-11	5-9-17	8-11-19	10-14-21	11-17-23	13-18-25	15-19-27	17-20-29	
	Vertical Pattern	Flow Rate (cfm)	64	96	129	161	193	225			
		Total Pressure (in. w.g.)	0.040	0.088	0.153	0.236	0.335	0.451			
		Sound (NC)	-	16	24	30	35	40			
		Throw (ft)	4-8-15	8-13-19	11-15-21	14-17-24	15-19-26	16-20-28			
36 in. Length 8 in. Oval Inlet	Horizontal Pattern	Flow Rate (cfm)	64	96	129	161	193	225	257	289	321
		Total Pressure (in. w.g.)	0.023	0.049	0.085	0.129	0.182	0.243	0.313	0.390	0.476
		Sound (NC)	-	-	16	23	29	33	38	41	44
		Throw (ft)									
	Vertical Pattern	Flow Rate (cfm)	64	96	129	161	193	225	257		
		Total Pressure (in. w.g.)	0.031	0.068	0.118	0.180	0.255	0.341	0.440		
		Sound (NC)	-	-	20	26	31	36	39		
		Throw (ft)	3-7-14	7-11-18	10-14-20	12-16-23	14-18-25	16-19-27	17-20-29		
48 in. Length 10 in. Oval Inlet	Horizontal Pattern	Flow Rate (cfm)	89	134	179	223	268	312	357	402	
		Total Pressure (in. w.g.)	0.024	0.052	0.089	0.136	0.193	0.258	0.332	0.415	
		Sound (NC)	-	-	17	24	29	34	38	42	
		Throw (ft)	2-4-10	4-7-14	6-10-17	8-12-19	10-14-21	11-16-22	13-17-24	14-18-25	
	Vertical Pattern	Flow Rate (cfm)	89	134	179	223	268	312	357		
		Total Pressure (in. w.g.)	0.033	0.072	0.126	0.193	0.273	0.366	0.472		
		Sound (NC)	-	-	21	27	32	37	40		
		Throw (ft)	4-8-15	8-12-19	11-15-21	14-17-24	15-19-26	16-28-28	17-21-30		
60 in. Length 10 in. Oval Inlet	Horizontal Pattern	Flow Rate (cfm)	89	134	179	223	268	312	357	402	446
		Total Pressure (in. w.g.)	0.017	0.037	0.063	0.096	0.134	0.178	0.227	0.282	0.342
		Sound (NC)	-	-	-	19	25	30	34	37	40
		Throw (ft)	1-3-7	3-5-10	5-7-13	6-9-15	7-10-16	8-12-17	9-13-19	10-14-20	11-15-21
	Vertical Pattern	Flow Rate (cfm)	89	134	179	223	268	312	357	402	446
		Total Pressure (in. w.g.)	0.022	0.048	0.082	0.124	0.174	0.232	0.297	0.369	0.448
		Sound (NC)	-	-	-	20	25	29	33	36	39
		Throw (ft)	3-6-13	6-10-16	9-13-19	11-15-21	13-16-23	14-18-25	15-19-27	16-20-28	17-21-30

Performance Notes:

1. Tested in accordance with ASHRAE Standard 70 - 2023 Method of Testing for Rating the Performance of Air Outlets and Inlets.
2. Airflow is in cubic feet per minute [cfm].
3. NC, sound pressure levels, are based on a room absorption of 10 dB re 10⁻¹² Watts, and a single diffuser/grille.
4. Blanks "-" indicate an NC level below 15.
5. All pressures are in inches of water column [in. w.g.].
6. Pressures not listed can be calculated using the following formula:

$$P_{total} = P_{static} + P_{velocity}$$
7. Horizontal pattern throw data based on 20°F cooling.
8. Vertical pattern throw data is based on a perimeter application with diffuser mounted within 18" from wall and on 15°F heating.
9. Throw data is given in feet [ft] to terminal velocities of:
 150 fpm (minimum)
 100 fpm (middle)
 50 fpm (maximum)
10. Blank area is outside of recommended operating range.



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