

Model: ECO–Automatic

Description

The ECO Automatic is a circular ceiling diffuser with the capability of automatically altering a portion of the supply airflow, from a horizontal to a vertical throw, depending on the supply air temperature. Suited for both domestic and commercial situations the appearance of the ECO Automatic is enhanced by the addition of a perforated front face. If the damper is set to automatic mode the perforated face enables some air to be directed downwards when in heating mode, while a portion of the air continues to be directed horizontally. This spreading of the warm air ensures fast mixing and even temperature distribution across the height of the room.

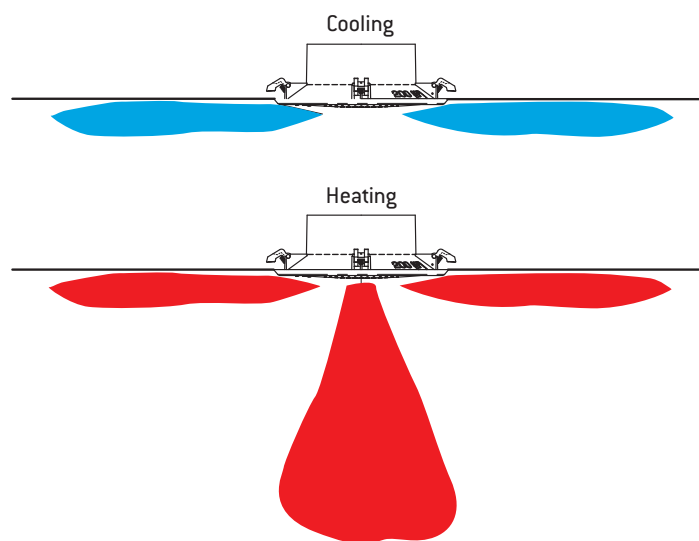
Operation

The ECO can automatically direct a portion of the supply air vertically when the supply air temperature is above 30°C. A temperature sensing device detects the supply air temperature and opens or closes a 'go – no go' damper to position the damper in Heating Mode, or Cooling Mode. In Heating Mode a portion of the supply air is let through the holes in the front face allowing it to be projected vertically downwards. In Cooling Mode all of the supply air is directed horizontally allowing mixing with the room air at high level and therefore reducing the chance of draughts being felt. The ECO is powered by the supply air temperature and does not need any external power source.

The ECO Automatic can also be locked in either the Heating, or Cooling modes by positioning the Operator in the side of the front face. The Operator locks into position effectively stopping the 'go – no go' damper from moving.

Performance

The ECO Automatic has the same performance as the ECO Manual while in Cooling Mode. A very strong radial ceiling effect is maintained at varying flow rates, making it suitable for variable air volume systems. In heating mode the benefits of throwing a portion of the heated air vertically, is a greatly reduced temperature gradient across the height of the room and a considerably faster heat up period.



Automatic Environmental Ceiling Outlet



Installation

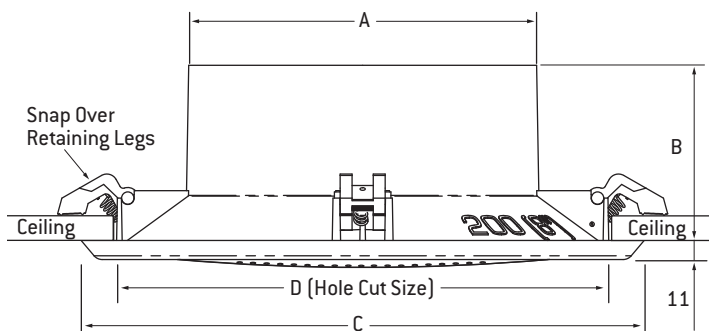
The ECO Automatic is very easy to install. A hole is created in the ceiling using the supplied template. The ECO will then be offered up to the ceiling and the ducting attached. The neck of the ECO is then inserted through the hole in the ceiling, enabling the four retaining legs to snap over, retaining the ECO tightly on the ceiling. The ECO can be mounted into both solid and suspended ceilings with little fuss, using the automatic snap over retaining legs.

Retrofit Installation

The ECO Automatic fits into the same sized hole as other similar types of diffuser. In addition, the slightly larger diameter outer flange, covers any imperfections in the ceiling finish that may have been left when the original diffuser was removed.

Construction and Finish

The ECO is constructed of a tough UV stabilised and fire rated engineering polymer. The colour of the ECO is White. All visible surfaces have a textured finish.



ECO-A	A (mm)	B (mm)	C (mm)	D (mm)
200	197	100	319	290 ± 5
250	247	108	391	360 ± 5
300	297	123	440	410 ± 5

ECO-A – Performance Data

Model: ECO-A

Horizontal Radial Throw - Cooling Mode.

Nominal Duct Size 200mm Diameter.	Flow Rate (l/s)		50	75	100	125	150	175	200	225	250	275	300	325	350
	Static Pressure (Pa)		10	22	40	60	84	113	144	176	211				
	Horizontal	@ 0.75 m/s		0.8	1.1	1.2	1.8	2.4	2.9	3.4	3.9				
	Radial	@ 0.50 m/s	0.9	1.1	1.7	1.9	2.4	2.9	3.5	3.9	4.4				
	Throw (m)	@ 0.25 m/s	1.4	2.2	2.7	3.0	3.5	3.9	4.4	4.9	5.5				
NC					16	20	25	29	32	35	39				
Nominal Duct Size 250mm Diameter.	Flow Rate (l/s)		50	75	100	125	150	175	200	225	250	275	300	325	350
	Static Pressure (Pa)			19	28	39	48	62	77	94	112	135	160		
	Horizontal	@ 0.75 m/s		0.7	1.0	1.1	1.7	2.2	2.3	2.4	2.6	2.9	3.1		
	Radial	@ 0.50 m/s		1.0	1.5	1.7	2.3	2.6	2.9	3.1	3.7	4.0	4.3		
	Throw (m)	@ 0.25 m/s		2.1	2.3	2.9	3.4	3.7	4.0	4.6	4.8	5.1	5.4		
NC							16	18	20	24	29	33	36		
Nominal Duct Size 300mm Diameter.	Flow Rate (l/s)		50	75	100	125	150	175	200	225	250	275	300	325	325
	Static Pressure (Pa)				9	12	17	20	25	31	36	43	50	57	67
	Horizontal	@ 0.75 m/s			0.8	1.1	1.3	1.5	1.7	1.9	2.0	2.3	2.6	2.8	2.9
	Radial	@ 0.50 m/s			1.4	1.7	1.9	2.2	2.5	2.6	2.9	3.1	3.3	3.4	3.5
	Throw (m)	@ 0.25 m/s			2.2	2.6	2.9	3.0	3.1	3.4	3.7	4.0	4.2	4.3	4.6
NC											18	21	23	26	29

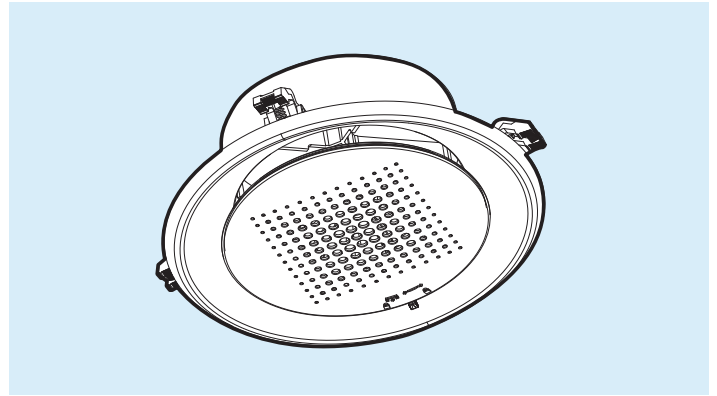
Model: ECO-A

Horizontal and Vertical Throws - Heating Mode.

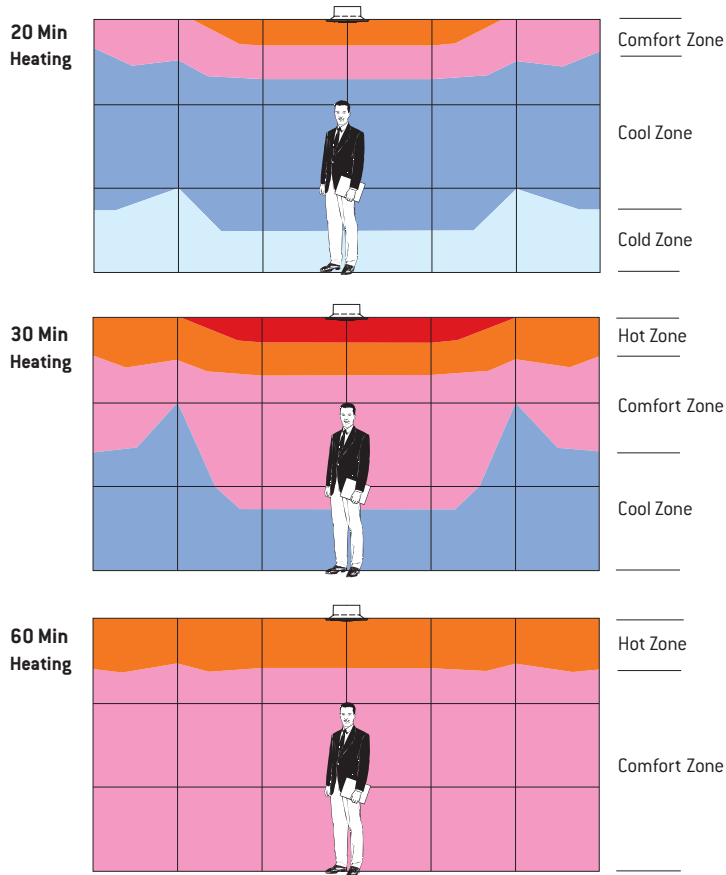
Nominal Duct Size 200mm Diameter.	Flow Rate (l/s)	50	75	100	125	150	175	200	225	250	275	300	325	350
	Static Pressure (Pa)	6	14	24	38	53	70	87	105	124				
	Horizontal @ 0.75 m/s	-	0.4	0.6	0.7	0.9	1.1	1.3	1.6	1.9				
	Radial Throw @ 0.50 m/s	0.4	0.6	0.9	1	1.2	1.4	1.6	1.9	2.2				
	(m) @ 0.25 m/s	0.8	1.2	1.4	1.6	1.8	2	2.3	2.6	2.8				
	Vertical @ 0.75 m/s	-	0.2	0.4	0.6	0.8	1	1.3	1.5	1.8				
	Throw @ 0.50 m/s	0.2	0.3	0.6	0.8	1	1.2	1.4	1.6	1.9				
	(m) @ 0.25 m/s	0.4	0.6	0.8	1	1.2	1.4	1.7	2	2.3				
NC	-	-	18	20	24	26	31	33	36					
Nominal Duct Size 250mm Diameter.	Flow Rate (l/s)	50	75	100	125	150	175	200	225	250	275	300	325	350
	Static Pressure (Pa)		11	17	24	30	39	49	59	71	86	101		
	Horizontal @ 0.75 m/s		0.3	0.5	0.6	0.9	1.1	1.2	1.2	1.3	1.5	1.7		
	Radial Throw @ 0.50 m/s		0.5	0.8	0.9	1.2	1.3	1.5	1.6	1.9	2.1	2.3		
	(m) @ 0.25 m/s		1.1	1.2	1.5	1.8	1.9	2.1	2.4	2.5	2.7	2.9		
	Vertical @ 0.75 m/s		0.2	0.4	0.5	0.7	1	1.1	1.1	1.2	1.3	1.5		
	Throw @ 0.50 m/s		0.2	0.4	0.7	1	1.1	1.2	1.3	1.4	1.5	1.8		
	(m) @ 0.25 m/s		0.3	0.5	1	1.2	1.3	1.4	1.6	1.7	1.8	1.9		
NC		-	-	-	-	18	20	23	28	32	34			
Nominal Duct Size 300mm Diameter.	Flow Rate (l/s)	50	75	100	125	150	175	200	225	250	275	300	325	350
	Static Pressure (Pa)			5	7	10	12	16	19	23	27	31	36	42
	Horizontal @ 0.75 m/s			0.4	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5
	Radial Throw @ 0.50 m/s			0.7	0.9	1	1.1	1.3	1.4	1.5	1.6	1.7	1.8	1.8
	(m) @ 0.25 m/s			1.1	1.3	1.5	1.6	1.7	1.8	1.9	2.1	2.2	2.2	2.4
	Vertical @ 0.75 m/s			0.3	0.5	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4
	Throw @ 0.50 m/s			0.5	0.6	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5	1.5
	(m) @ 0.25 m/s			0.7	0.8	1	1.1	1.2	1.3	1.4	1.5	1.6	1.8	1.9
NC			-	-	-	-	-	-	18	20	22	25	28	

Heating Comparison

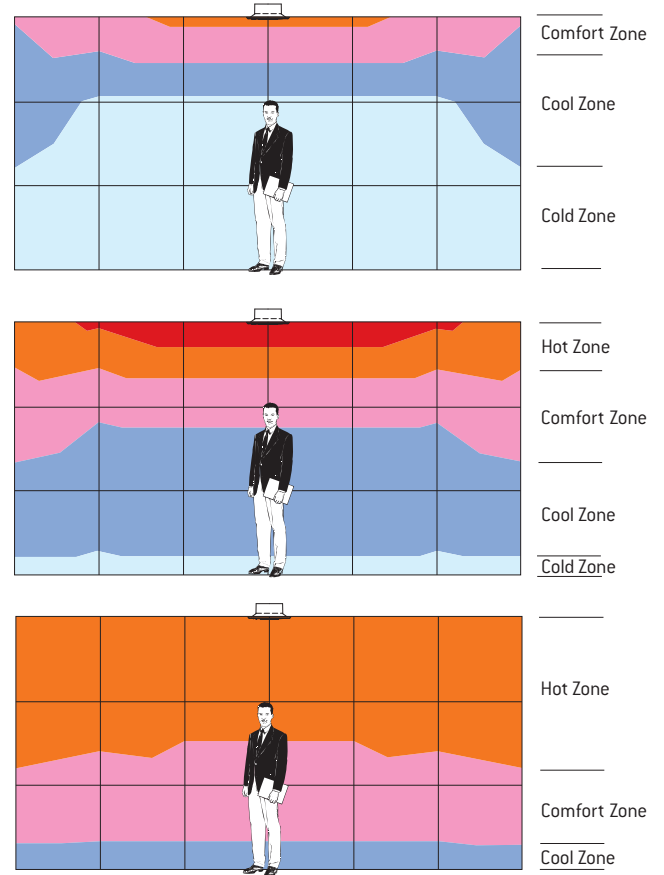
The graphical comparison below shows the temperature gradient in a room that has been heated from cold. The graphs demonstrate how the ECO – Automatic quickly achieves an even heat distribution across the height of the room. The vertical and horizontal air jets are more effective at evenly distributing and mixing the heat than with a horizontal throw only.



ECO - Automatic Diffuser Performance



Comparable Non-Automatic Diffuser Performance





Model: ECO-M
Environmental Ceiling Outlet Manual circular radial pattern ceiling diffuser with plaque fascia.



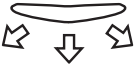
Model: ECO-A
Environmental Ceiling Outlet Automatic circular radial pattern ceiling diffuser with perforated fascia.

Model: ECO-R*
Environmental Ceiling Outlet - Return/Exhaust
(Design, as ECO-A above).
* 150mm Duct Size Only

Adjustment Settings

The ECO Automatic Diffuser is versatile and can be adjusted to operate Automatically or set to provide the combination air pattern or alternatively set for horizontal air pattern only by simply moving the adjustment arm into the desired setting position.

**Horizontal & Vertical Air Pattern
Heating Mode**

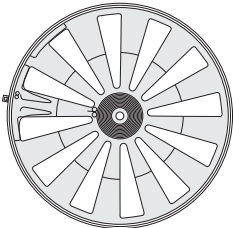
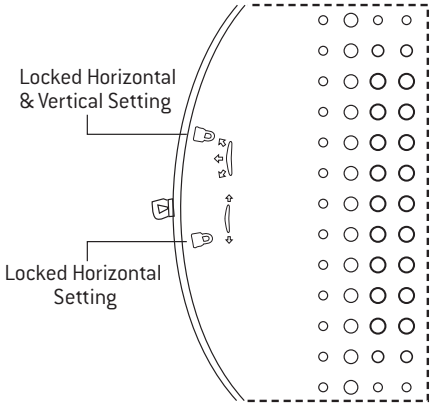


Combination Horizontal & Vertical (heating)

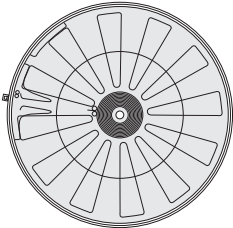
**Horizontal Air Pattern
Cooling Mode**



Horizontal Only (cooling)



Damper Open



Damper Closed

ECO-A, ECO-M, CRA & CRP

Product Ordering Key and Suggested Specifications

CRA — 200 — FINISH Series Nominal Duct Size Holyoake White Mill Aluminium Powder Coat	Circular Ceiling Diffusers shall be Holyoake Model CRA with compact flange and adjustable air pattern. Diffusers shall be manufactured from spun aluminium with threaded adjustable core mechanism. The air pattern shall be radial and adjustable from horizontal to vertical. Circular Ceiling Diffuser to be supplied with integral mounting system. Diffusers shall be finished in powdercoat and fitted with accessories and dampers where indicated. All shall be as manufactured by Holyoake.
CRA-T — 200 — FINISH Series Nominal Duct Size Holyoake White Mill Aluminium Powder Coat	Circular Ceiling Diffusers shall be Holyoake Model CRA-T with compact flange and thermal core adjustment. Diffusers shall be of spun aluminium construction with Holyoake thermal power pill. With supply air temperatures below 24 degrees the supply air pattern is diffused horizontally. With supply air temperatures above 28 degrees the core is automatically lifted to produce a supply air pattern diffused vertically. Circular Ceiling Diffuser to be supplied with integral mounting system. Diffusers shall be finished in powdercoat and fitted with accessories and dampers where indicated. All shall be as manufactured by Holyoake.
CRP — 200 — FINISH Series Nominal Duct Size Holyoake White Mill Aluminium Powder Coat	Circular Ceiling Diffusers shall be Holyoake Model CRP with compact flange and adjustable supply air plaque. Diffusers shall be manufactured from spun aluminium with threaded adjustable plaque core. The air pattern shall be radial and adjustable from horizontal to vertical. Circular Ceiling Diffusers to be supplied with integral mounting system. Diffusers shall be finished in powdercoat and fitted with accessories and dampers where indicated. All shall be as manufactured by Holyoake.
CRP-T — 200 — FINISH Series Nominal Duct Size Holyoake White Mill Aluminium Powder Coat	Circular Ceiling Diffusers shall be Holyoake Model CRP-T with compact flange and thermal core adjustment. Diffusers shall be of spun aluminium construction with Holyoake thermal power pill. With supply air temperatures below 24 degrees the supply air pattern is diffused horizontally. With supply air temperatures above 28 degrees the core is automatically lifted to produce a supply air pattern diffused vertically. Circular Ceiling Diffuser to be supplied with integral mounting system. Diffusers shall be finished in powdercoat and fitted with accessories and dampers where indicated. All shall be as manufactured by Holyoake.
ECO — M — 150 200 250 Series Manual Duct Size	Ceiling diffusers shall be Holyoake Series ECO-M, manufactured from injection moulded tough U.V. stabilised and fire rated engineering polymer, in self coloured white as standard. Series ECO-M shall have the ability to regulate the airflow via an adjustable central cone. All shall be as manufactured by Holyoake.
ECO — A — 200 250 300 Series Automatic Duct Size	Ceiling diffusers shall be Holyoake Series ECO-A, manufactured from injection moulded tough U.V. stabilised and fire rated engineering polymer, in self coloured white as standard. Series ECO-A shall have the ability to regulate the airflow via an adjustable central cone and automatically direct a portion of the airflow downwards, when supplying air above 30°C. All shall be as manufactured by Holyoake.
ECO — R — 150 Series Return/Exhaust Duct Size	Ceiling diffusers shall be Holyoake Series ECO-R, manufactured from injection moulded tough U.V. stabilised and fire rated engineering polymer, in self coloured white as standard. The exhaust air can be regulated via an adjustable central cone. All shall be as manufactured by Holyoake.