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.

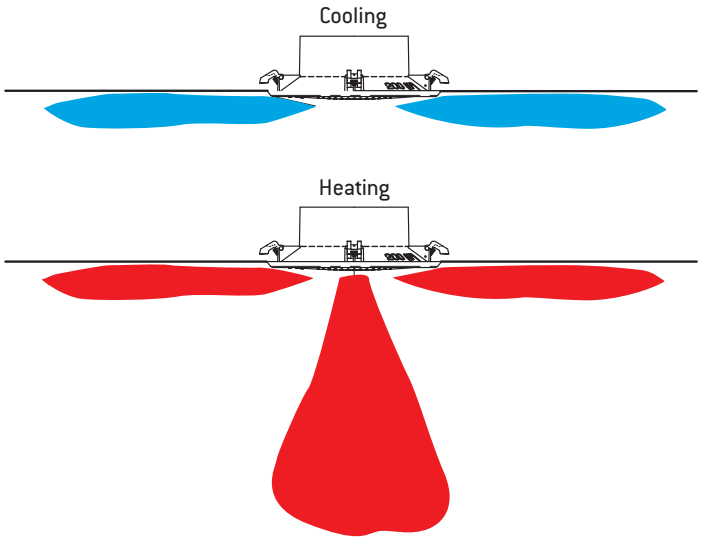
Operation

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

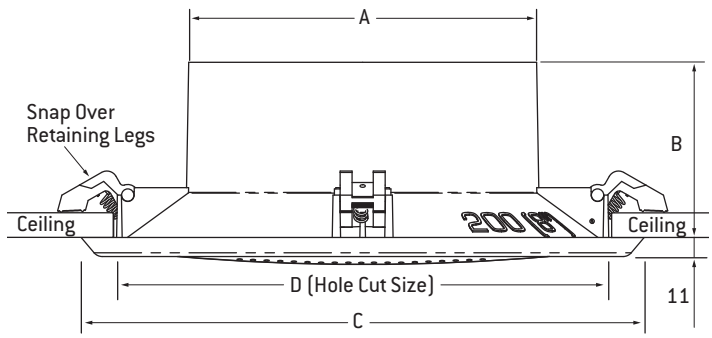
The ECO Automatic is very easy to install. A hole is created in the ceiling using the supplied template. The ECO will then be offered up to the ceiling and the ducting attached. The neck of the ECO is then inserted through the hole in the ceiling, enabling the four retaining legs to snap over, retaining 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	Flow Rate (l/s)		50	75	100	125	150	175	200	225	250	275	300	325	350
200mm Diameter.	Static Pressure (Pa)		10	22	40	60	84	113	144	176	211				
	Horizontal Radial Throw (m)	@ 0.75 m/s		0.8	1.1	1.2	1.8	2.4	2.9	3.4	3.9				
		@ 0.50 m/s	0.9	1.1	1.7	1.9	2.4	2.9	3.5	3.9	4.4				
		@ 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	Flow Rate (l/s)		50	75	100	125	150	175	200	225	250	275	300	325	350
250mm Diameter.	Static Pressure (Pa)			19	28	39	48	62	77	94	112	135	160		
	Horizontal Radial Throw (m)	@ 0.75 m/s		0.7	1.0	1.1	1.7	2.2	2.3	2.4	2.6	2.9	3.1		
		@ 0.50 m/s		1.0	1.5	1.7	2.3	2.6	2.9	3.1	3.7	4.0	4.3		
		@ 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	Flow Rate (l/s)		50	75	100	125	150	175	200	225	250	275	300	325	325
300mm Diameter.	Static Pressure (Pa)				9	12	17	20	25	31	36	43	50	57	67
	Horizontal Radial Throw (m)	@ 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
		@ 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
		@ 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	Flow Rate (l/s)		50	75	100	125	150	175	200	225	250	275	300	325	350
200mm Diameter.	Static Pressure (Pa)		6	14	24	38	53	70	87	105	124				
	Horizontal Radial Throw (m)	@ 0.75 m/s	-	0.4	0.6	0.7	0.9	1.1	1.3	1.6	1.9				
		@ 0.50 m/s	0.4	0.6	0.9	1	1.2	1.4	1.6	1.9	2.2				
		@ 0.25 m/s	0.8	1.2	1.4	1.6	1.8	2	2.3	2.6	2.8				
	Vertical Throw (m)	@ 0.75 m/s	-	0.2	0.4	0.6	0.8	1	1.3	1.5	1.8				
		@ 0.50 m/s	0.2	0.3	0.6	0.8	1	1.2	1.4	1.6	1.9				
		@ 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	Flow Rate (l/s)		50	75	100	125	150	175	200	225	250	275	300	325	350
250mm Diameter.	Static Pressure (Pa)			11	17	24	30	39	49	59	71	86	101		
	Horizontal Radial Throw (m)	@ 0.75 m/s		0.3	0.5	0.6	0.9	1.1	1.2	1.2	1.3	1.5	1.7		
		@ 0.50 m/s		0.5	0.8	0.9	1.2	1.3	1.5	1.6	1.9	2.1	2.3		
		@ 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 Throw (m)	@ 0.75 m/s		0.2	0.4	0.5	0.7	1	1.1	1.1	1.2	1.3	1.5		
		@ 0.50 m/s		0.2	0.4	0.7	1	1.1	1.2	1.3	1.4	1.5	1.8		
		@ 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	Flow Rate (l/s)		50	75	100	125	150	175	200	225	250	275	300	325	350
300mm Diameter.	Static Pressure (Pa)				5	7	10	12	16	19	23	27	31	36	42
	Horizontal Radial Throw (m)	@ 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
		@ 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
		@ 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 Throw (m)	@ 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
		@ 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
		@ 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

Notes

1. Cooling Performance Data based on Isothermal air.
2. Heating Performance Data based on a temperature differential of 17 Degrees C.
3. Seismic restraints required but not supplied.

Model: **ECO-R and ECO-SR.**

Return/Exhaust Performance.

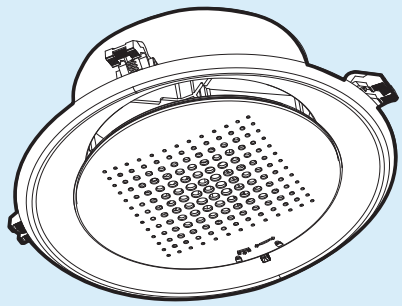
Nominal Duct Size	Flow Rate (l/s)	25	50	75	100	125	150
150mm Diameter.	Negative Static Pressure (Pa)	5	19	43	80	130	175
	NC	18	22	24	27	35	37

ECO-A & SA Size	Weight in Kg
200	1.1
250	1.6
300	2.2

ECO-R & SR Size	Weight in Kg
150	0.8

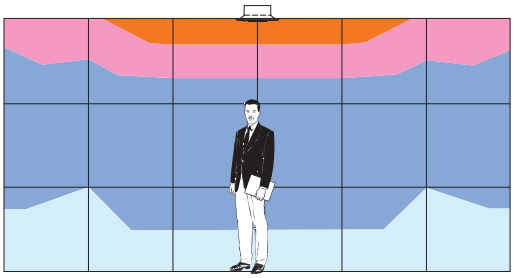
Heating Comparison

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.

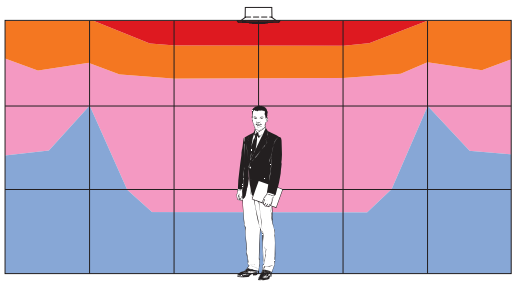


ECO - Automatic Diffuser Performance

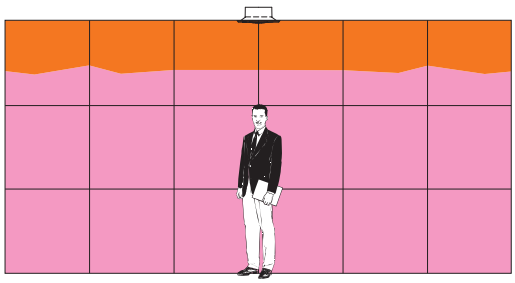
20 Min Heating



30 Min Heating



60 Min Heating



Comparable Non-Automatic Diffuser Performance