



## Eggcrate Return Grilles

51EC Series

# Product Overview

## Eggcrate Return Grilles

The Series 51EC Eggcrate Return Grilles are high capacity return or exhaust outlets with the highest free area available (approximately 90%). They therefore have the lowest pressure drop and sound levels available for a return air inlet.

The aluminium cube cores are constructed of thin, interlocked aluminium strips assembled in a square grid fashion and match in appearance the grid louvres on parabolic light fixtures. They are most suitable for use as ceiling returns. They are not recommended for low side wall applications due to potential core damage.

The 51EC Series are available with various frame/border styles to suit both lay-in type and hard ceilings.

### Features:

- Optional opposed blade damper has a screwdriver slot operator for adjustment through the face of the grille.
- Screw holes in the frame are countersunk for neat appearance (standard). painted to match grille, are supplied.
- Concealed mountings are available (option).

### Material:

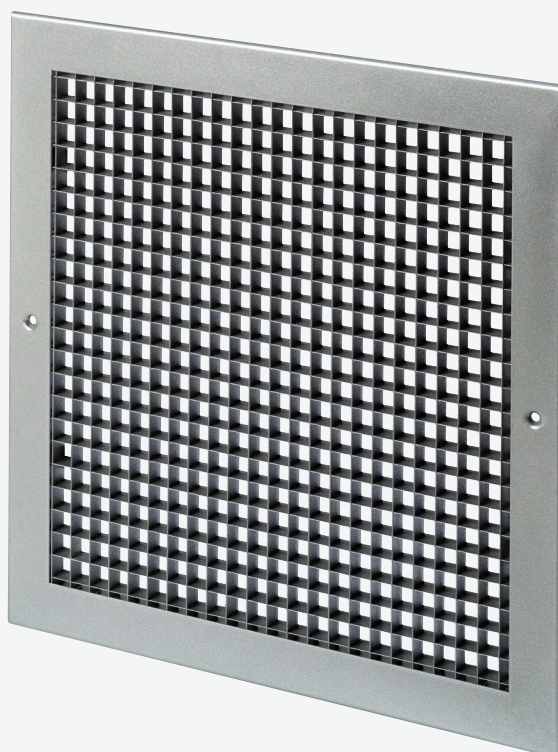
Extruded aluminium frame.  
Aluminium grid core - 13 x 13 x 13mm standard.

### Finish:

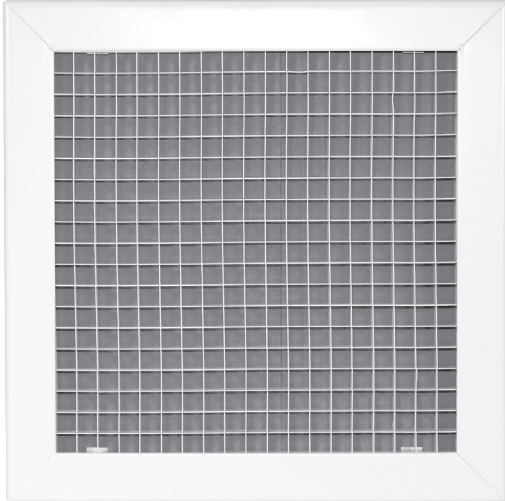
White polyester powder finish RAL 9010 semi-gloss as standard.  
Special finishes are available.

### Models:

**51EC Return**  
Aluminium Eggcrate/Lattice Cores



# Aluminium Eggcrate Return Grilles



Model 51EC Grilles have grid cores capable of transferring or returning high air volumes at minimum pressure requirements. They match in appearance the grid louvres on parabolic light fixtures and are available to suit both lay-in T-Bar openings in suspended grid ceilings and overlap openings in hard ceilings and walls.

Model 51EC Type S Surface mount, flanged frame. This model has a flanged frame with an overall face dimension that is 44mm larger than the listed duct size. It is supplied as standard with countersunk screw holes and mounting screws. Available with optional opposed blade damper.

Model 51EC Type L Lay-in T-bar, aluminium frame/border. This model is similar to above, but is sized on the overall face dimension to suit standard lay-in T-bar ceiling modules and is supplied without screw holes. It is the model of choice for ducted return air applications. The nominal duct size is 50mm smaller than the ceiling module. When installed, the frame/border is partially visible within the perimeter of the ceiling opening and provides a visually appealing architectural finish. Available with optional opposed blade damper.

Model 51EC Type A Lay-in T-bar, concealed angle frame/border. This model has a narrow corrosion-resistant steel frame that surrounds the eggcrate core and which is invisible when installed in standard lay-in T-bar ceilings. It is suited to non-ducted plenum return air applications. The angle frame provides a finished edge to the eggcrate core which may be desirable if it is to be handled on a frequent basis. It also permits the attachment of an optional opposed blade damper.

Model 51EC Type C Lay-in T-bar, core only. The most cost effective return air grille for T-bar ceilings. The ceiling grid conceals the raw edges of the eggcrate when installed. Suitable for use only in non-ducted plenum return air applications. This model is not available with a damper.

## Features:

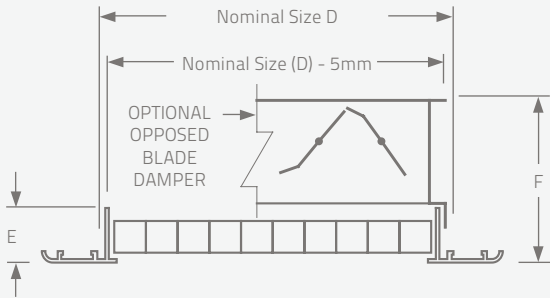
- Model 51EC Type S has a 30mm face border with a 25mm overlap margin, supplied with countersunk screw holes and mounting screws. Type NF Narrow frame with 25mm face border optional. Concealed mounting is optional.
- Aluminium construction - Extruded aluminium frames mechanically interlocked with reinforced mitred corners.
- Grid cores are aluminium. Standard core size is 13 x 13 x 13mm with mechanically locked-in margins, or available as core only.
- Integral dampers - aluminium, Opposed blade design with a screwdriver slot operator.
- White polyester powder finish RAL 9010 semi-gloss is standard. Other finishes are available.
- Standard sizes are available in most models from 100mm x 100mm to 1200mm x 1200mm in single section construction. Other sizes, including multiple section assemblies, are available on request but are subject to manufacturing limitations.
- Max single with OBD + 600mm on width and height. Mullions will be fitted over 600mm.

**Model:** 51EC  
(Suffix 'OA' adds opposed blade damper)

# Dimensional Data

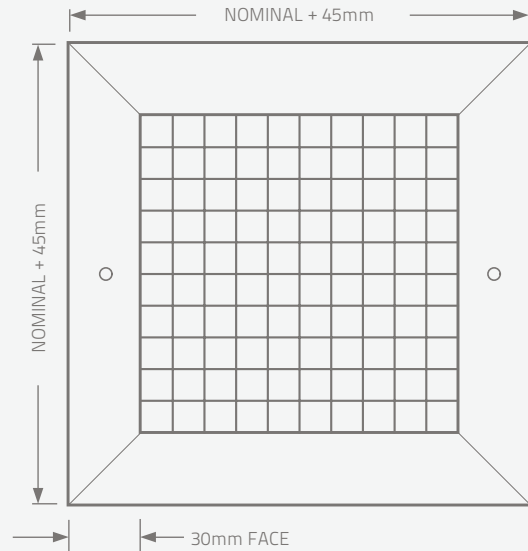
## 51EC Series Eggcrate Return

### Model 51EC Type S - Surface mount

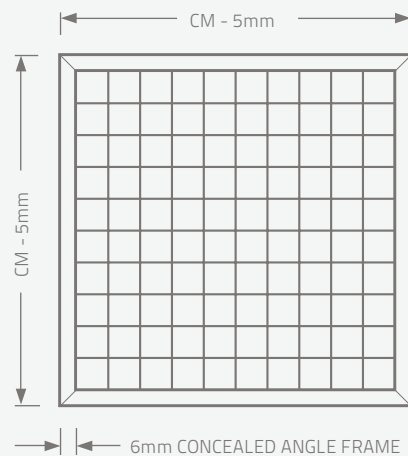
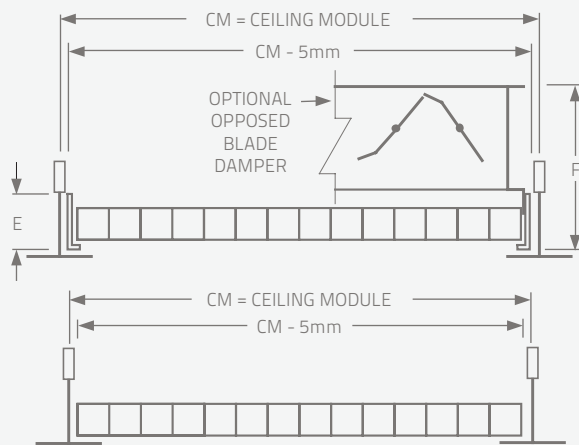


Dimension	Standard Frame	Optional NF Frame
E	23mm	32mm
F	68mm	76mm

\*Optional Type NF Narrow Frame has a 25mm face border.  
Overall flange to flange dimension = listed size + 32mm.



### Model 51EC Type A - Lay-in, concealed angle frame



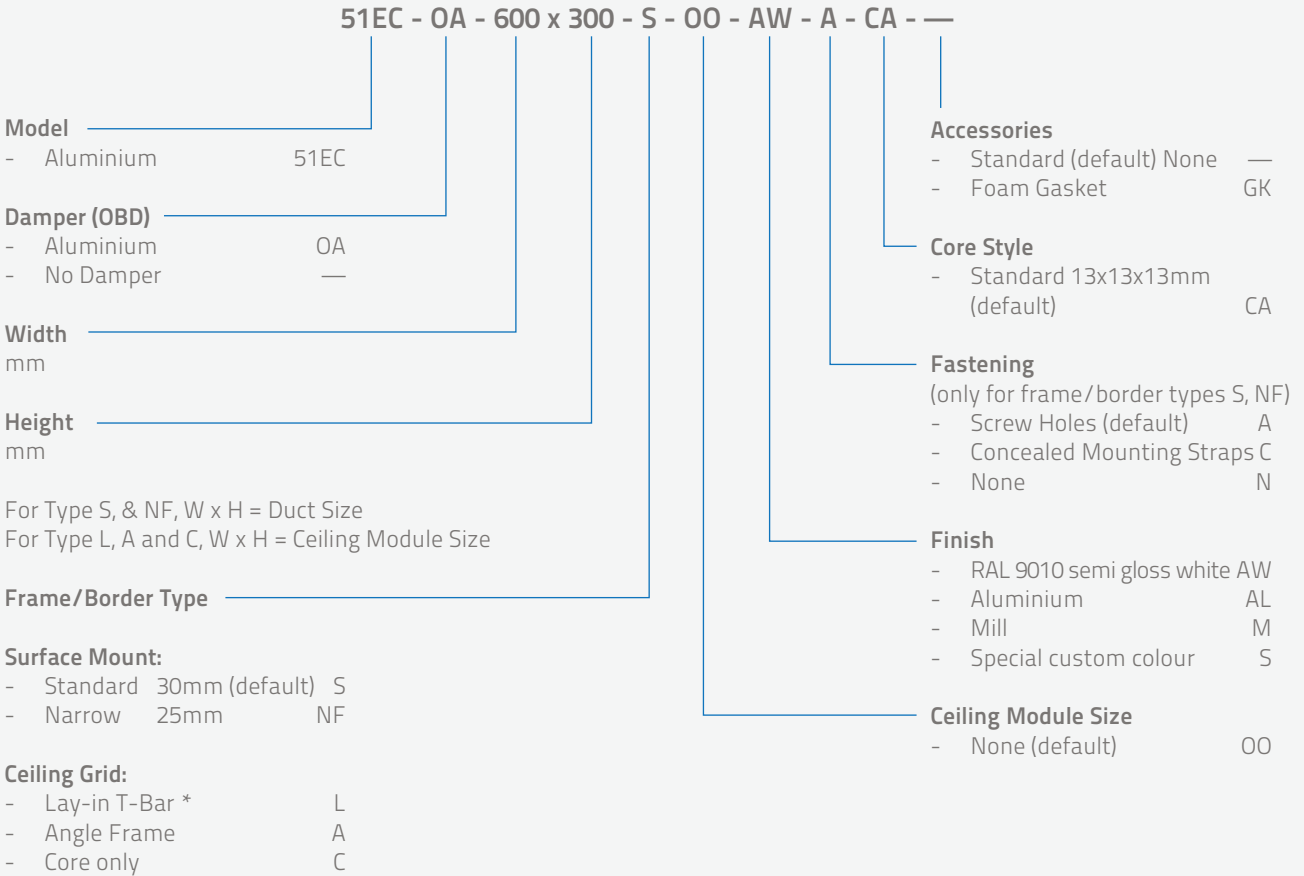
### Model 51EC Type C - Core only

Removeable core is available as an option, Eng to supply.



# How To Specify or To Order

## Aluminium Eggcrate Return and Exhaust Grilles ■ Model Series 51EC



(Show complete Model Number and Size, unless "Default" is desired)

**Notes:**

1. For a standard grille with no special requirements, specification is only required as far as the damper selection. The "default" will automatically be selected. For example, an aluminium grille, eggcrate core, surface mount with damper, is Model 51EC-OA. Unit will be supplied with screw holes and AW Appliance White, polyester powder finish RAL 9010 semi-gloss.
2. \*For Type L Lay-in, grille neck size is ceiling module size - 50mm.

# Performance Data

## Eggcrate Return Grilles ■ Model Series: 51EC

Listed Duct Size (mm)	Alternate Size (mm)	Core Area (m <sup>2</sup> )	Core Velocity (m/s) Pressure Drop (Pa)	0.5 1	1.0 5	1.5 10	2.0 17	2.5 26	3.0 37	3.5 50	4.0 65	4.5 83
200x100 150x150	250x100	0.020	Flowrate (l/s) NC Level	28 –	38 –	47 –	57 13	66 18	76 22	85 27	94 30	113 36
200x150	250x125 300x100	0.027	Flowrate (l/s) NC Level	38 –	51 –	64 –	76 14	89 19	102 24	115 28	127 31	153 37
250x150	300x125 400x100	0.035	Flowrate (l/s) NC Level	50 –	66 –	83 –	99 15	116 21	132 25	149 29	165 32	198 38
200x200	350x125	0.038	Flowrate (l/s) NC Level	54 –	72 –	90 –	108 16	126 22	143 25	161 30	179 33	215 39
300x150	450x100	0.042	Flowrate (l/s) NC Level	59 –	79 –	99 10	119 16	139 22	159 26	178 30	198 33	238 39
300x200	400x150 600x100	0.058	Flowrate (l/s) NC Level	82 –	109 –	137 11	164 18	192 24	219 27	246 31	274 34	328 40
250x250	350x175 650x100	0.061	Flowrate (l/s) NC Level	86 –	115 –	144 12	173 18	202 24	230 27	259 32	288 35	345 41
450x150	350x200 750x100 700x100	0.065	Flowrate (l/s) NC Level	92 –	123 –	153 12	184 18	215 24	245 28	276 32	307 35	368 41
300x250	400x200 500x200 600x125	0.074	Flowrate (l/s) NC Level	105 –	140 –	175 13	210 19	244 25	279 28	314 32	349 36	419 42
300x300	350x250 600x150 450x200 950x100	0.090	Flowrate (l/s) NC Level	127 –	170 –	212 14	255 20	297 25	340 29	382 33	425 37	510 43
350x350	400x300 600x200 500x250 850x150	0.124	Flowrate (l/s) NC Level	176 –	234 –	293 15	351 21	410 26	468 30	527 34	585 38	702 44
450x300	400x350 700x200 550x250 950x150	0.137	Flowrate (l/s) NC Level	194 –	259 –	323 16	388 21	453 27	517 31	582 34	647 38	776 44
600x250	500x300 750x200	0.152	Flowrate (l/s) NC Level	215 –	287 –	359 16	430 22	502 27	574 31	646 35	717 39	861 45
400x400	450x350 750x200 550x300	0.164	Flowrate (l/s) NC Level	232 –	310 –	387 16	464 22	542 27	619 31	697 35	774 39	929 45
600x300	450x400 750x250 500x350 900x200	0.185	Flowrate (l/s) NC Level	262 –	349 –	437 16	524 22	611 27	698 31	786 35	873 39	1048 45
450x450	500x400 700x300 600x350 800x250	0.210	Flowrate (l/s) NC Level	297 –	396 –	495 16	595 22	694 27	793 32	892 35	991 39	1189 45
750x300	500x450 650x350 550x400 900x250	0.232	Flowrate (l/s) NC Level	328 –	438 –	547 16	657 23	766 27	876 33	985 36	1095 40	1314 46
500x500	600x450 750x350 650x400 900x300	0.261	Flowrate (l/s) NC Level	369 –	493 –	616 17	739 23	862 27	985 33	1108 36	1232 40	1478 46
550x550	600x500 750x400 650x450 900x350	0.317	Flowrate (l/s) NC Level	449 –	598 –	748 17	898 24	1047 28	1197 33	1346 37	1496 41	1795 47
750x450	600x550 1000x350 850x400	0.354	Flowrate (l/s) NC Level	501 –	668 –	835 18	1002 24	1169 29	1336 33	1503 37	1671 41	2005 47
600x600	650x550 800x450 700x500 900x400	0.379	Flowrate (l/s) NC Level	537 –	715 11	894 18	1073 25	1252 30	1431 34	1610 38	1789 42	2146 48
900x450	800x500 1150x350 1000x400	0.429	Flowrate (l/s) NC Level	607 –	810 11	1012 18	1215 25	1417 30	1620 34	1822 38	2024 42	2429 48
650x650	700x600 1200x350	0.447	Flowrate (l/s) NC Level	633 –	844 12	1055 19	1266 26	1477 31	1688 35	1898 39	2109 43	2531 49
750x600	700x650 900x500 800x550 1000x450	0.477	Flowrate (l/s) NC Level	675 –	900 12	1125 20	1351 26	1576 31	1801 35	2026 39	2251 43	2701 49
700x700	750x650 1000x500 650x550	0.520	Flowrate (l/s) NC Level	736 –	982 13	1227 20	1472 26	1718 31	1963 36	2208 39	2454 43	2945 49
900x600	750x700 1100x500 1000x550	0.574	Flowrate (l/s) NC Level	813 –	1083 13	1354 21	1625 27	1896 32	2167 36	2438 40	2709 43	3250 50
750x750	850x650 1200x500 950x600	0.599	Flowrate (l/s) NC Level	848 –	1131 14	1413 21	1696 27	1979 32	2261 36	2544 40	2827 44	3392 50





# Air Balancing **Devices**

## Opposed Blade Dampers

Advanced Air Opposed Blade Dampers are manufactured from extruded aluminium blades and frame with miscellaneous steel components.

The gang operated multi-blade design with blades closing at 45 degrees permits fine volume control for accurate balancing with minimum disturbance to the airflow pattern. Blades are individually pivoted on 25mm centres.

The Opposed Blade Damper mounts directly on the neck of the grille and fits most Advanced Air grilles. Steel barbed S-clips are used for easy site mounting or removal when ordered separately. Supplied as standard with a screwdriver slot operator (Type SL) on supply grilles and a screwdriver pivot lever operator (Type PL) on fixed, angled deflection return grille. Type SL operator is standard if damper is ordered separately from grille.

Can be specified as an integral part of the grille by adding a OA suffix to the grille model.

Min. Size = 100mm x 64mm Max. Size = 600 x 600mm

## Type SL Operator

The SL Operator incorporates a screwdriver slot, which adjusts from the face of the grille. This operator is the standard supplied with supply air grilles such as the single and double deflection adjustable blade.

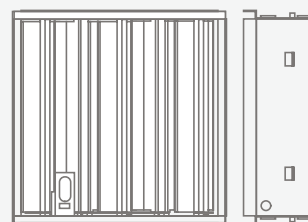
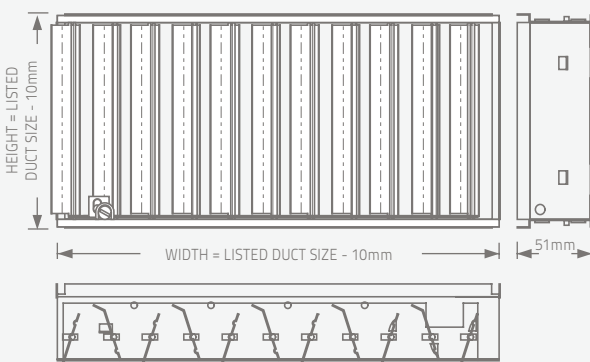
## Type PL Operator

The PL Operator is a concealed pivot lever, which is adjusted from the face of the grille using a screwdriver. This operator is for use only on fixed blade, angled deflection, return air grilles. When specifying, the blade orientation of the damper must be opposite of the grille.

## Model OBD Type SL (Screwdriver Slot)

## Type PL (Pivot Lever)

Grille Mount – Face Operator





# Plenums ■ For Grilles and Diffusers

Plenum boxes are designed to give even airflow across the Advanced Air range of grilles and diffusers.

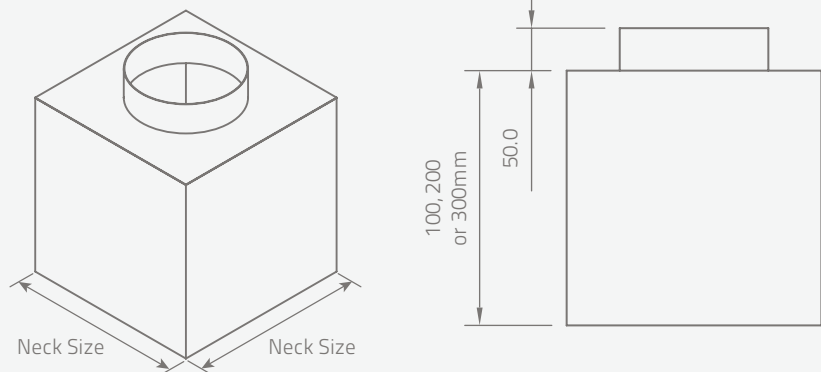
Manufactured from 0.6 to 0.8mm galvanised mild steel, the plenum boxes come with a range of spigots suitable for rectangular, circular or flat oval duct connections in either side or top entry applications. Plenums are supplied flangeless as standard. Flanges and fixing angles for drop rod/hanging support are optional extras. Concealed fixed plenums are also available on certain products, please contact Advanced Air sales for further details.

Plenums can also be supplied with optional balancing devices and thermal/acoustic lining where required. Plenum internals are natural finish as standard but optional matt black internal finish is available.

Please contact Advanced Air Sales for further details, or for bespoke solutions.

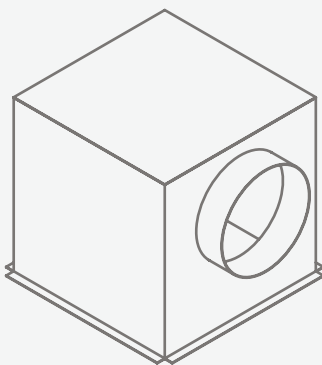
- Rectangular, Circular or Flat Oval Duct Connections
- Flanges & Fixing Angles Available
- Thermal/Acoustic Lining Option
- Variety of Finishes Available

## Top Entry

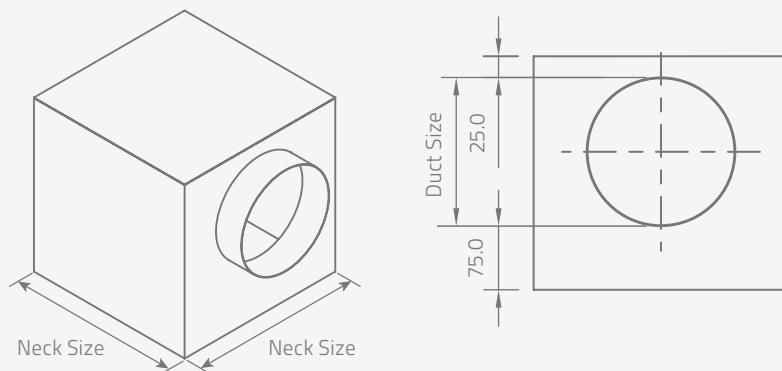


## Flanges

15mm wide flanges are available.



## Side Entry



### Note:

As standard side entry plenum height is determined by specified spigot size, alternatively, overall height can be specified. Please contact Advanced Air sales for more details.