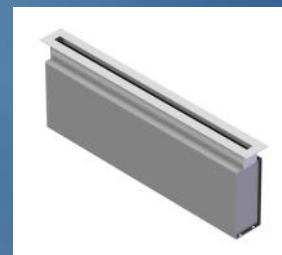


CONSTANT VOLUME LINEAR AEROFOIL DIFFUSER

CLA

- ✦ CONTROL THE PERIMETER EFFECTIVELY
- ✦ HORIZONTAL/VERTICAL FLOW PATTERN
- ✦ 3 SLOT WIDTHS SUIT EVERY APPLICATION
- ✦ CHOOSE 1 - 4 SLOTS
- ✦ EXCELLENT THROW & FLOW
- ✦ ENERGY EFFICIENT
- ✦ NO MAINTENANCE



FEATURES

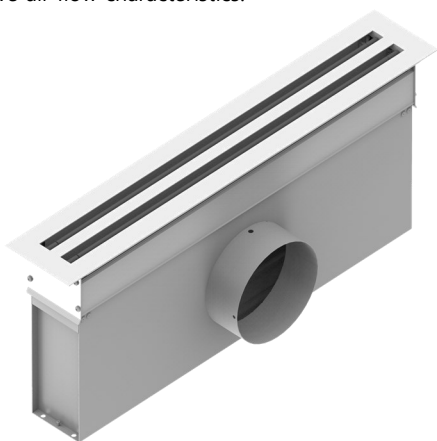
Rickard's Constant Volume Linear Aerofoil Diffuser (CLA) can be used to shield the load transmitted through a buildings windows or as an attractive diffuser alternative in internal zones. Their pattern controllers can be adjusted to create a vertical curtain of conditioned air that acts as a barrier to constant thermal loads or create a horizontal flow pattern that creates good mixing without drafts.

Aerodynamic pattern controllers inside the linear slot create a low pressure drop to supply air quietly and efficiently. The pattern controllers can be manually adjusted to direct the air horizontally or vertically.

Rickard's CLA diffuser tracks are available in 19mm or $\frac{3}{4}$ ", 25mm or 1" & 31.75mm or $1\frac{1}{4}$ " wide slots. The choice of slot widths give greater choice to select a linear with the correct, flow, throw and noise performance for the specific application. 600, 900, 1200 and 1500mm lengths are available. CLA's are designed to be joined end-to-end to create uninterrupted lengths of attractive linear track.

PERFORMANCE

Aerodynamically shaped diffuser components reduce noise and improve air flow characteristics.



OPERATION

The airflow pattern is adjustable from below the ceiling, being changeable from one-way blow in either direction or to vertical down blow.

INSTALLATION SAVINGS

Optional Jubilee Clamp saves time and material when attaching the flex.

CAPITAL & OPERATING COST

Low diffuser height can reduce a buildings overall cost by reducing the height of the ceiling void.

AESTHETICS

Rickard CLA Diffuser tracks are designed to be joined end-to-end to create uninterrupted lengths of attractive linear track. CLA Tracks are compatible with other Rickard CLA tracks, Dummy tracks (inactive sections of track often used for return air) or VLA tracks (Variable Volume Linear Aerofoil Diffusers).

Tracks are finished in a wide range of high quality epoxy powder coated finishes. Matt White comes as standard.

MAINTENANCE

Surface mount CLA diffuser tracks are accessible from below the ceiling. No skilled labour or special tools are required for fitment or removal.

The CLA's plenum is constructed from corrosion resistant mill galvanized sheet steel. The diffuser tracks are constructed from aluminium extrusion and are coated with epoxy powder coating.

No regular maintenance is required.

APPLICATIONS

ZONES WITH A CONSTANT LOAD

COOLING AND HEATING

PROPORTIONAL TERMINAL RE-HEAT

HEATING WITH STAND ALONE OR BMS CONTROLS

HEATING WITH REMOTE SETPOINT

RICKARD Constant Volume Linear Aerofoil Diffusers are intended for zones where load fluctuations are limited. The Constant Volume Linear Aerofoil Diffuser, as its name implies, do not automatically regulate the air volume entering the conditioned space - they are constant volume devices. Consequently, room temperatures will vary with room loads (assuming the duct air temperature and pressure remain constant).

Should this method be decided upon, care should be taken in selection of the CLA diffuser to ensure dumping does not take place at minimum air flow status.

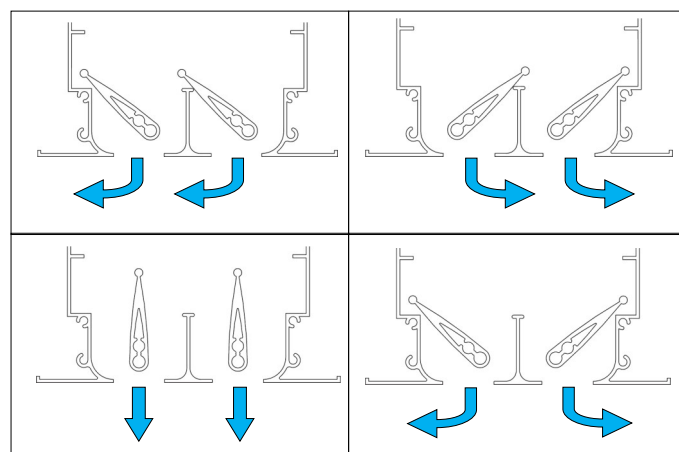
The Rickard CLA diffusers can be used to supply spaces that require heating or cooling. To ensure that dumping does not occur in cooling and stratification in heating care must be taken to supply the diffuser with adequate pressure.

Constant Volume Diffusers can be used to supply top up heating when required. This is achieved by fitting them with a Rickard Neck Heater.

OPERATION

A useful feature of the RICKARD CLA is the ease with which the direction of airflow may be adjusted. Although airflow direction is not normally changed once the system is operational, it does simplify the ordering procedure. All linear air diffusion track is identical and the choice of one-way or two-way blow is easily implemented on site by simply flipping the flow directional vane to the preferred side. Single slot CLA's are only available in horizontal blow.

It is possible to direct air vertically downwards for better room penetration, especially when the CLA is in the heating mode.



COMMISSIONING

Optional manually adjustable volume control is available should system balancing be required. The volume control mechanism is accessible from the face of the CLA.

SELECTION

The first consideration when designing a system is to calculate the required supply air volume and temperature to satisfy room conditions at maximum heat loads. It is recommended that ducting is sized using static regain design principles. Supply air velocities in branch ducts should be between 3.5 and 7.5/s (650 and 1500ft/min).

THROW

This is the distance from the centre of the diffuser to the point at which the supply air velocity has reduced to 0.25m/s (50ft/min) when measured 25mm (1 inch) below the ceiling. Coning occurs when two airstreams travelling in opposite directions meet and result in a downward moving cone of air (applies to pattern controller in the horizontal position). A similar effect is experienced should a diffuser be positioned at a distance from the wall that is less than its throw. The air will strike the wall and flow in a downward direction such that the point at which the air reaches a velocity of 0.25m/s (50ft/min), the sum of the horizontal and vertical travel of the air is equal to the diffuser throw.

NOISE LEVEL REQUIREMENTS

The published diffuser noise level must be checked to ensure it is within the project specification. Published diffuser noise levels represent only the noise generated by the diffuser and do not take into consideration any duct-borne noise.

DUCT STATIC PRESSURE

Diffuser performance has been established using diffuser neck TOTAL pressure, although that which is normally known or measured is duct STATIC pressure. What happens between the duct and the diffuser depends on the length and type of flexible duct being used. For simplicity, it can be assumed that the duct STATIC pressure is approximately equal to the diffuser neck total pressure. This is a valid assumption for systems where flexible duct lengths are not excessive and can be explained briefly as follows:

The static pressure loss due to friction in the flexible duct ($\pm 10\text{Pa}$ or 0.04ins Wg) would normally be about the same as the velocity pressure in the neck of the diffuser and since total pressure is the sum of static and velocity pressure. Although the tables reflect diffuser performance for neck total pressures ranging from $30\text{-}70\text{Pa}$ ($0.12\text{-}0.28\text{ins Wg}$), caution should be exercised when selecting diffuser outside the $30\text{-}50\text{Pa}$ ($0.12\text{-}0.20\text{ins Wg}$). At lower pressures air movement and induction may be insufficient and at higher pressures draughts and excessive noise may result. Best results are obtained when diffusers are selected at pressures of $30\text{-}40\text{Pa}$ ($0.12\text{-}0.16\text{ins Wg}$).

TYPES

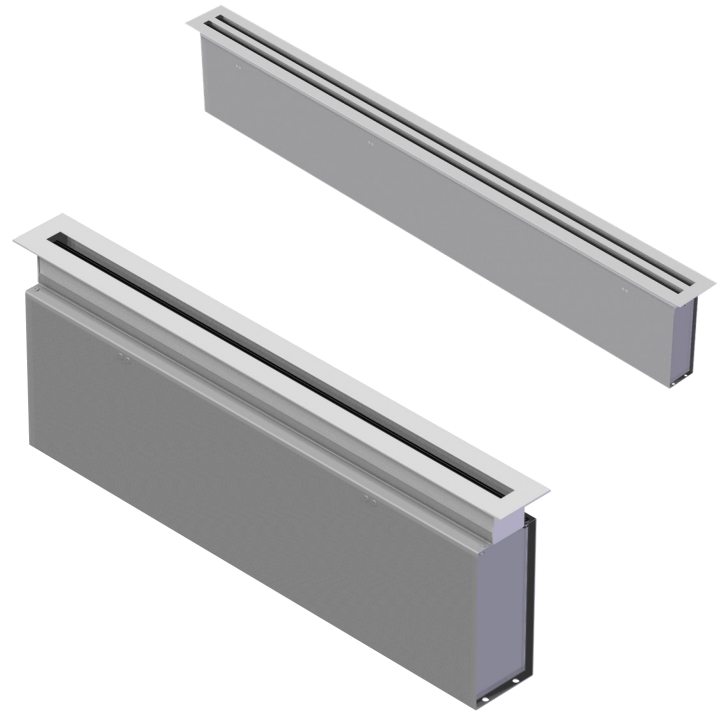
TRACK SLOTS

CLA Linear Diffusers are available in a range of slot widths and quantities. The slot widths available are $3/4"$ or 19mm , $1"$ or 25mm & $1\ 1/4"$ or 31.75mm . A CLA can be ordered with 1 to 4 slots. This allows for a greater range of flow, throw and noise performance values.

TRACK LENGTHS

The standard CLA is available in unit lengths of:

- 600mm
- 900mm
- 1200mm
- 1500mm



TRACK MOUNTINGS

CLA Linear Tracks are designed to fit **Plastered Ceilings (Surface Mount)** and most **Ceiling Grid (Drop-in)** variants.

Rickard CLA Diffuser tracks are designed to be joined end-to-end with alignment pins to create uninterrupted lengths of attractive linear track. CLA Tracks are compatible with other Rickard CLA tracks, Dummy tracks (inactive sections of track often used for return air) or CLN tracks (Constant Volume Linear Diffusers).

CLA Diffusers are available with 1 - 4 Slot tracks, with adjustable pattern controllers for vertical to horizontal blow.

Tracks are finished in a wide range of high quality epoxy powder coated finishes. Matt White comes as standard.

SPIGOT SIZE AND QUANTITY

CLA Linear Diffusers with multiple slots require larger and/or more spigots. Please see the CLA Spigot Detail table for more detail.

HEATING OPTION

CLA's are also available with built in heaters. Please see Electric Section for more Information on this option.

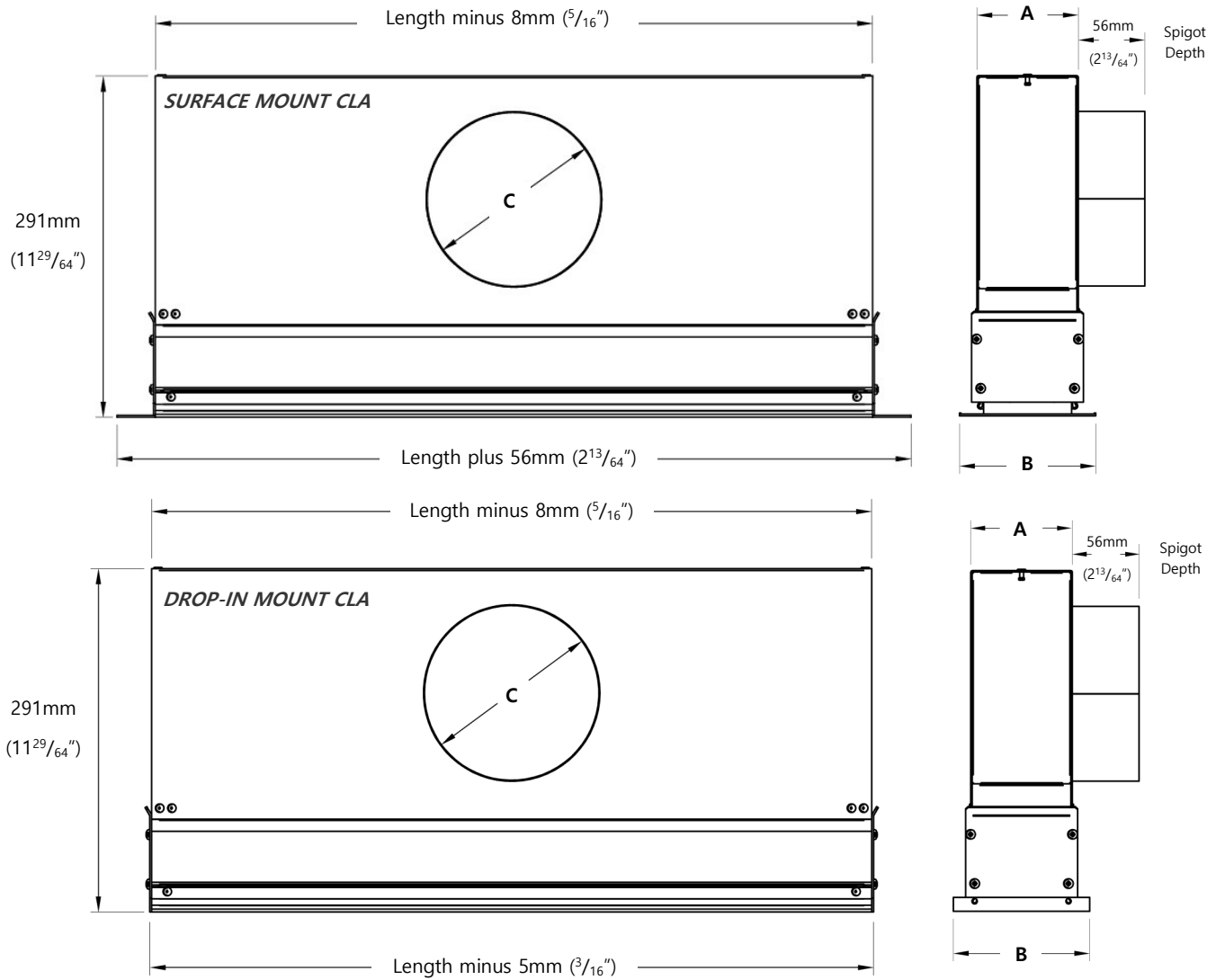
SENSING OPTIONS

If fitted with Heating, CLA's can get their signal from another Master Diffuser or by attaching a remote Wall Thermostat. Onboard Sensing is not available on CLA's.

COMMISSIONING

Optional manually adjustable volume control is available should system balancing be required. The volume control mechanism is accessible from the face of the CLA.

DIMENSIONS



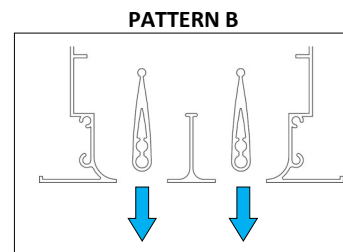
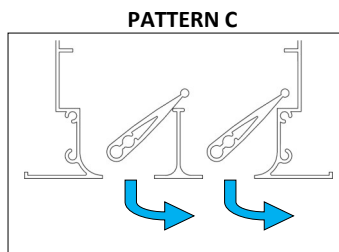
Slot Width		Dimension	1 Slot		2 Slot		3 Slot		4 Slot	
mm	"		mm	"	mm	"	mm	"	mm	"
19	3/4	A	47	1 55/64	99	3 57/64	135,5	5 21/64	172	6 25/32
		B	76	3	113	4 7/16	149,5	5 57/64	186	7 21/64
25	1	A	53	2	111	3 3/8	153,5	6	196	7 23/32
		B	82	3 15/64	125	5	167,5	6 19/32	210	8 1/4
31.75	1 1/4	A	60	2 21/64	124	4 7/8	174	6 55/64	223	8 25/32
		B	89	3 1/2	138	5 27/64	188	7 13/32	237	9 21/64

Length		Slot Width		1 Slot Spigot Size (C)		2 Slot Spigot Size (C)		3 Slot Spigot Size (C)		4 Slot Spigot Size (C)	
mm	inches	mm	inches	Ø mm	Ø inches	Ø mm	Ø inches	Ø mm	Ø inches	Ø mm	Ø inches
600	24	19	3/4	150	6	150	6	250	10	250	10
		25	1	150	6	200	8	250	10	300	12
		31.75	1 1/4	150	6	200	8	250	10 x 2	200 x 2	8 x 2
900	36	19	3/4	200	8	200	8	300	12 x 2	350	14 x 2
		25	1	200	8	250	10	350	14	250 x 2	10 x 2
		31.75	1 1/4	200	8	250	10	350 x 2	14 x 2	300 x 2	12 x 2
1200	48	19	3/4	200	8	250	10	350	14 x 2	250 x 2	12 x 2
		25	1	200	8	300	12	300 x 2	12 x 2	300 x 2	12 x 2
		31.75	1 1/4	200	8	350	14	350 x 2	14 x 2	350 x 3	14 x 3
1500	60	19	3/4	250	10	300	12	250 x 2	10 x 2	300 x 2	12 x 2
		25	1	250	10	350	14	300 x 2	12 x 2	350 x 2	14 x 2
		31.75	1 1/4	250	10	250 x 2	10 x 2	350 x 2	14 x 2	350 x 2	14 x 2

CLA 600 - 200mm Oval	FULLY OPEN						
NECK TOTAL PRESSURE (Pa)	10	20	30	40	50	60	70
2 SLOT, ADJUSTABLE BLOW (31.75mm each)							
FLOW (l/s) PATTERN B	63	89	109	129	143	158	171
FLOW (l/s) PATTERN C	33	49	62	70	80	88	95
THROW (m) PATTERN C	3,5	4,2	5,3	6,0	6,6	7,0	7,5
NOISE - NC LEVEL	10	22	27	30	35	38	39

CLA 900 - 250mm Oval	FULLY OPEN						
NECK TOTAL PRESSURE (Pa)	10	20	30	40	50	60	70
2 SLOT, ADJUSTABLE BLOW (31.75mm each)							
FLOW (l/s) PATTERN B	76	108	135	155	175	192	207
FLOW (l/s) PATTERN C	51	75	94	108	123	135	147
THROW (m) PATTERN C	4,5	5,9	6,9	7,7	8,4	9,0	9,6
NOISE - NC LEVEL	10	22	27	32	36	38	41

CLA 1200 - 350mm Oval	FULLY OPEN						
NECK TOTAL PRESSURE (Pa)	10	20	30	40	50	60	70
2 SLOT, ADJUSTABLE BLOW (31.75mm each)							
FLOW (l/s) PATTERN B	110	157	195	222	248	271	294
FLOW (l/s) PATTERN C	71	100	123	141	157	173	187
THROW (m) PATTERN C	6,2	8,4	9,4	10,0	10,3	10,6	11,0
NOISE - NC LEVEL	11	23	29	34	37	40	42



Throw data is taken 25mm below the ceiling on a line through the centre of the diffuser with the damper fully open & an air velocity at 0.25m/s.

Noise Criteria levels apply to a single diffuser mounted in a room having a Sound Absorption of 10dB in octave bands having centre frequencies from 125Hz to 8000Hz (i.e. the difference between Sound Pressure Level (dB re:2 x 10⁻⁵ Pa) and Sound Power Level (dBW re: 10⁻¹² watts) is equal to 10dB). These levels represent only the noise generated by the diffuser and do not take into account any duct-borne noise.

Diffusers are factory set for a minimum of 30% of the maximum flow levels reflected above. It should be noted that minimum diffuser air flow settings are approximate & may require to be reset on site to compensate for actual site system pressures.

Performance Data applies to Standard Air having a density of 1.2 kg/m³.