

CONSTANT VOLUME FIXED VANE RADIAL DIFFUSER

RCD

-  COOLING APPLICATIONS
-  HIGH CEILING APPLICATIONS
-  EXCELLENT THROW & FLOW
-  HIGH INDUCTION RATES
-  LOW NOISE
-  NO MAINTENANCE
-  10 YEAR WARRANTY



FEATURES

The RICKARD Constant Volume Fixed Vane Radial Diffuser (Type RCD) is primarily intended for buildings where good air mixing is required. They are ideal for installations with ceiling voids in excess of 3.0m and where improved occupant comfort is called for in cooling modes.

Due to their ability to achieve a rapidly spreading swirl throw pattern with fast velocity decay and high induction rates, these diffusers are best suited to provide high air volume flow rates without drafts at occupant levels. They create a conical swirl flow pattern for excellent mixing in cooling.



PERFORMANCE

High induction rates for large volume applications.

MAINTENANCE

No regular maintenance is required.

ENERGY SAVINGS

The focus of the design offers high comfort levels by offering the required diffuser performance with the lowest pressure drop possible.

AESTHETICS AND CONSTRUCTION

Designed with simplicity and functionality in mind the Rickard range of RCD's compliments most of today's large modern spaces.

The RCD is constructed of sheet steel. Each RCD is degreased, primed and finished in our standard semi-matt white chip resistant baked epoxy powder coating. A wide range of colour requirements can be met with our epoxy coating or wet spray options.

WARRANTY

Rickard warrants its RCD's for a period of 10 years.

APPLICATION

AREAS WITH CEILING VOID HEIGHTS GREATER THAN 3.0m.

COOLING:

Cools the space with a conical swirl flow pattern of cold or isothermal air.

HEATING:

Heats the space with a conical swirl flow pattern of air that has a temperature differential between room and supply of no more than 10°C.

INTERNAL ZONES WITH A CONSTANT LOAD.

BUILDINGS THAT NEED EXCELLENT AIR MIXING.

WHERE HIGH AIR VOLUME FLOW RATES AND THE ABSENCE OF DRAFTS AT OCCUPANT LEVELS ARE REQUIRED.

SELECTION

The most important practical factors to consider in internal zones are noise levels and uniform air distribution without "dumping" effects. "Dumping" is the tendency for cold, dense air to leave the diffuser as a vertical column similar to a waterfall. The effect of dumping is to overcool the person immediately below the diffuser while the person further away will not be cooled enough.

Dumping is eliminated by ensuring that the discharge air energy from the diffuser is adequate to distribute conditioned air evenly throughout the conditioned area and at the same time provide good secondary room air induction rates. Providing the total pressure in the neck of the RCD selected is not too low, dumping of conditioned cold air will not take place. The RCD is designed to avoid the tendency to dump.

A rapidly descending flow pattern similar to dumping can occur when two air streams travelling in opposite directions meet. This tendency is substantially reduced with the use of radial diffusers, but it can be avoided completely by ensuring that RCD's are placed far enough apart to eliminate drafts in the conditioned spaces. The Rickard RCD's flow pattern is horizontal. The swirl effect creates a rapid decay in velocity with high induction rates. Using this information, RCD's should be situated in the ceiling such that two adjacent diffusers are separated by slightly less than the sum of their diameter. Exactly how much less depends largely on the amount of air movement desired in the conditioned space.

TYPES

Rickard's range of RCD's comes in 2 sizes, namely a **315** and a **400mm** diameter unit.

OPTIONS

Top entry round and side entry square plenums are available as an optional extra.

Entry plenums constructed from coated or uncoated mill galvanized sheet steel are also available.

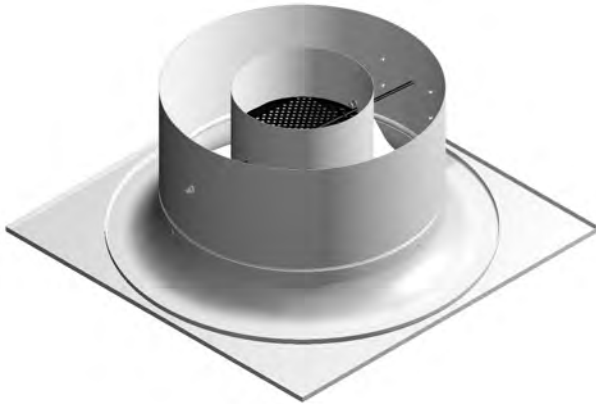
The Rickard Radial Diffuser Range supports a wide range of mounting methods.

MOUNTING OPTIONS

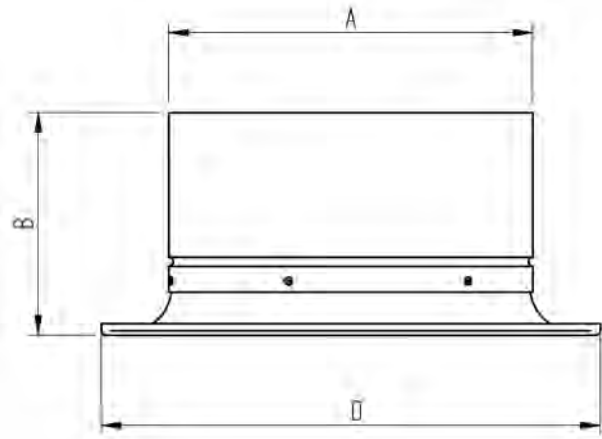
EXPOSED TEE CEILING GRID

1. Drop-in Flush Mounting
2. Drop-in Shadow Line

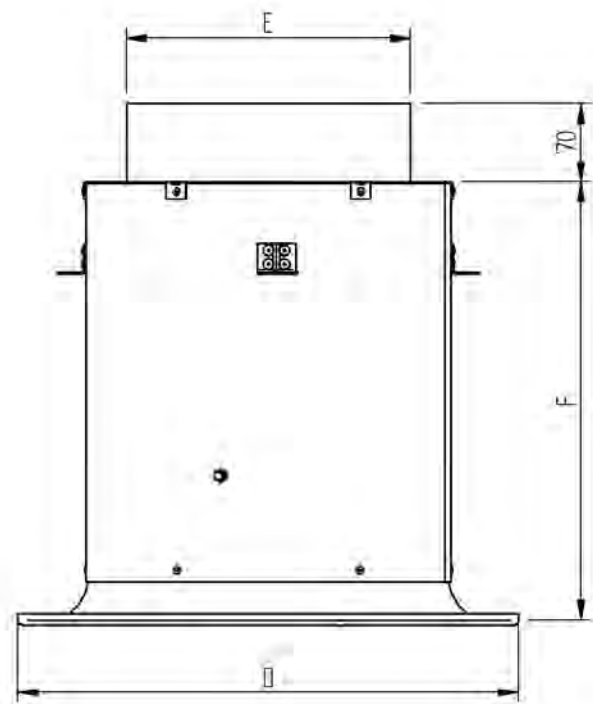
Flush Mounting and Shadow Line styles are available for 315 and 400mm Radials only. These can be supplied with the following mounting plate sizes, 595x595mm & 23¾x23¾" to suit 600x600mm & 24x24" ceiling grids respectively. Special sizes are available on request.



RVD (Shown) or RCD-NP (DROP-IN FLUSH MOUNTING)



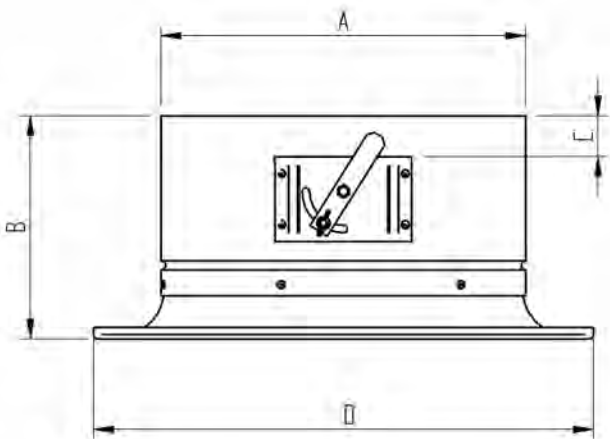
RCD-NP (NO PLENUM)



RVD or RCD-CP (CIRCULAR PLENUM)

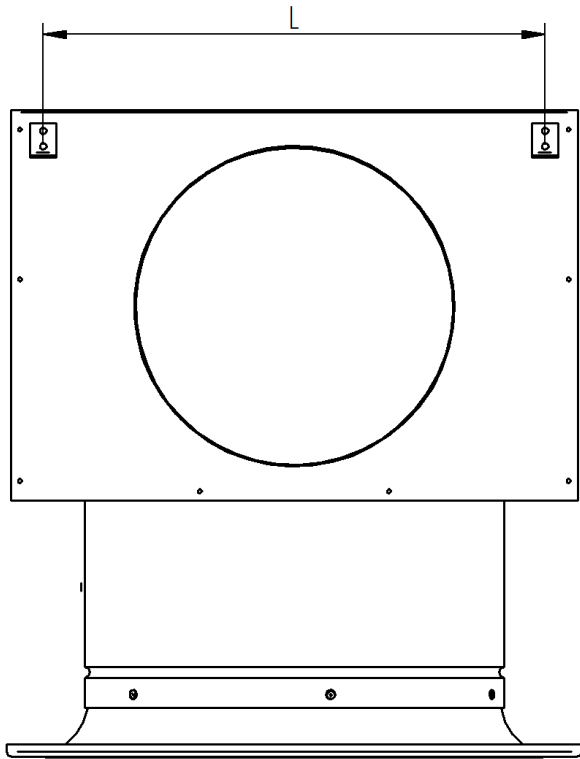
MOUNTING IN FREE SPACE

1. 4 Point Fixing (4 Brackets fitted to the round or square plenum for threaded rod connection)
2. Hard Duct Connection (no accessories required)



RVD-NP (NO PLENUM)

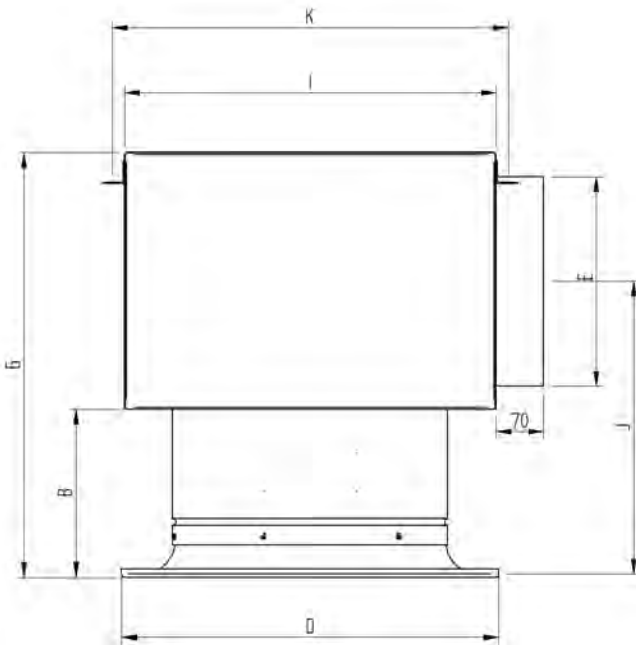
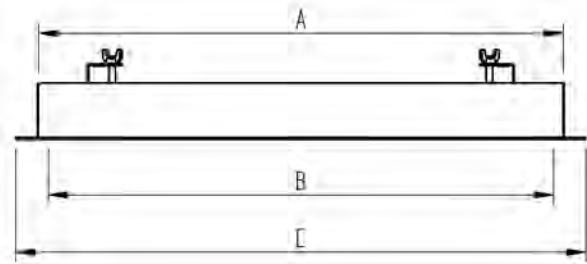
UNIT SIZE	DIMENSIONS mm										
	A	B	C	D	E	F	G	I	J	K	L
RV/CD315	319	197	36	440	250	425	480	435	340	464	385
RV/CD400	404	250	53	560	300	530	600	500	419	530	450
RVD630	634	394	102	879	400	750	850	750	615.5	780	700



RVD or RCD-SP (SQUARE PLENUM) FRONT VIEW



T-RING FOR MOUNTING RVD'S IN PLASTERED CEILINGS



RVD or RCD-SP (SQUARE PLENUM) SIDE VIEW

T-RING GENERAL DIMENSIONS					
RADIAL SIZE	A	B	C	BELL MOUTH DIAMETRE	CUT-OUT SIZE
RV/CD315	445	425	485	440	460
RV/CD400	565	545	605	560	580
RVD630	885	865	925	880	900

PLASTERED CEILING

1. T-Ring (Circular Frame to allow Drop-in Flush Mounting)
 Fixing of Radial diffusers in a plastered ceiling often presents a problem because of restricted access to the ceiling void. A T-Ring is available to allow Drop-in Flush Mounting of a standard Radial Diffuser. The T-Ring is mounted flush with the ceiling after a round hole is cut into the plaster board. Four threaded brackets draw the T-Ring flush against the ceiling to ensure a neat finish. **NOTE:** Do not overload the plastered ceiling. Attach safety wires or threaded rod to the RVD to reduce the load on the ceiling and to safeguard the occupants.

RCD-NP					
		(130° CONE)			
NECK SIZE	TOTAL PRESSURE	FLOW	VERTICAL THROW COMPONENT (10°C Δ)	HORIZONTAL THROW COMPONENT (10°C Δ)	NC LEVEL
[mm]	[Pa]	[l/s]	[m] (0.25 m/s)	[m] (0.25 m/s)	[-]
315	25	270	1.6	1.32	31
	50	380	2.0	1.65	36
	75	465	2.2	1.82	40
	100	542	2.4	1.98	45
400	25	459	2.0	1.65	35
	50	646	2.4	1.98	41
	75	791	2.7	2.23	46
	100	921	3.0	2.48	52

All measurements were recorded with a differential of 10°C between supply and room temperature. Throw is measured at the point at which the air velocity reaches 0.25m/s. The RVD forms a 130°/10 degree cone shaped pattern of air. Velocity measurements were taken along this line but recorded in metres as a vertical and horizontal component.

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.

NOTE: Performance will differ from catalogue values if side-entry square plenums are used.

For performance data not reflected on any of the preceding tables, kindly contact your local Rickard sales representative.

RICKARD AIR DIFFUSION (PTY) LTD RESERVES THE RIGHT TO CHANGE SPECIFICATIONS AND DATA WITHOUT PRIOR NOTICE.

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