

# KOOLAIR

## series

# KD

Dual duct terminal units



[www.koolair.com](http://www.koolair.com)

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## Dual duct box, type KD

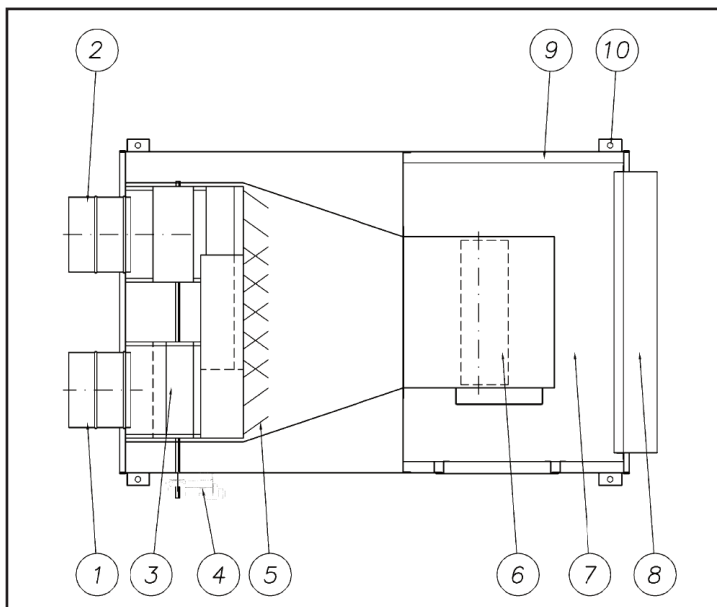
### Description

The Koolair dual duct box, KD is utilised in systems where the accurate regulation of the air temperature is made by the actuation of a single spindle controlling both the heated and cooled air supplied into the mixing box. The box can be fitted with a constant flow regulator.

The dual duct box has two spigot inlet connections for introduction of cold and hot air, spigots are circular or oval, depending on the size of the unit. Inlet duct dampers are interconnected and mounted at 90 degrees, with the control being carried out either electrically or pneumatically as required. After the inlet spigots and mixing section the unit can be fitted with a constant volume mechanical regulator type RCQK in order to achieve the designed airflow. This constant volume regulator is factory calibrated to the air volume required on site, although it can be manually recalibrated by means of the externally mounted mechanism, accessible through an access panel. The unit casing, mixing section and spigots are manufactured of galvanised steel sheet, with the unit being internally lined with a thermo-acoustic fibreglass insulation with a textile fire resistant facing to prevent glass fibres entering the airstream.

When cooling demand in the room is at its peak, the flow rate through the KD unit is 100% cold air, this action is controlled by the actuator and room modulating regulator. As cooling requirements are reduced, the cold air damper will close whilst proportionately the hot air damper will open, therefore increasing the temperature of the mixed air.

With the KD box you can achieve a controlled temperature of the supplied air by varying the input volume of hot and cold air (typical arrangement of VAV system), but remaining constant flow to the system (typical arrangement in a CAV system).



KD boxes incorporate:

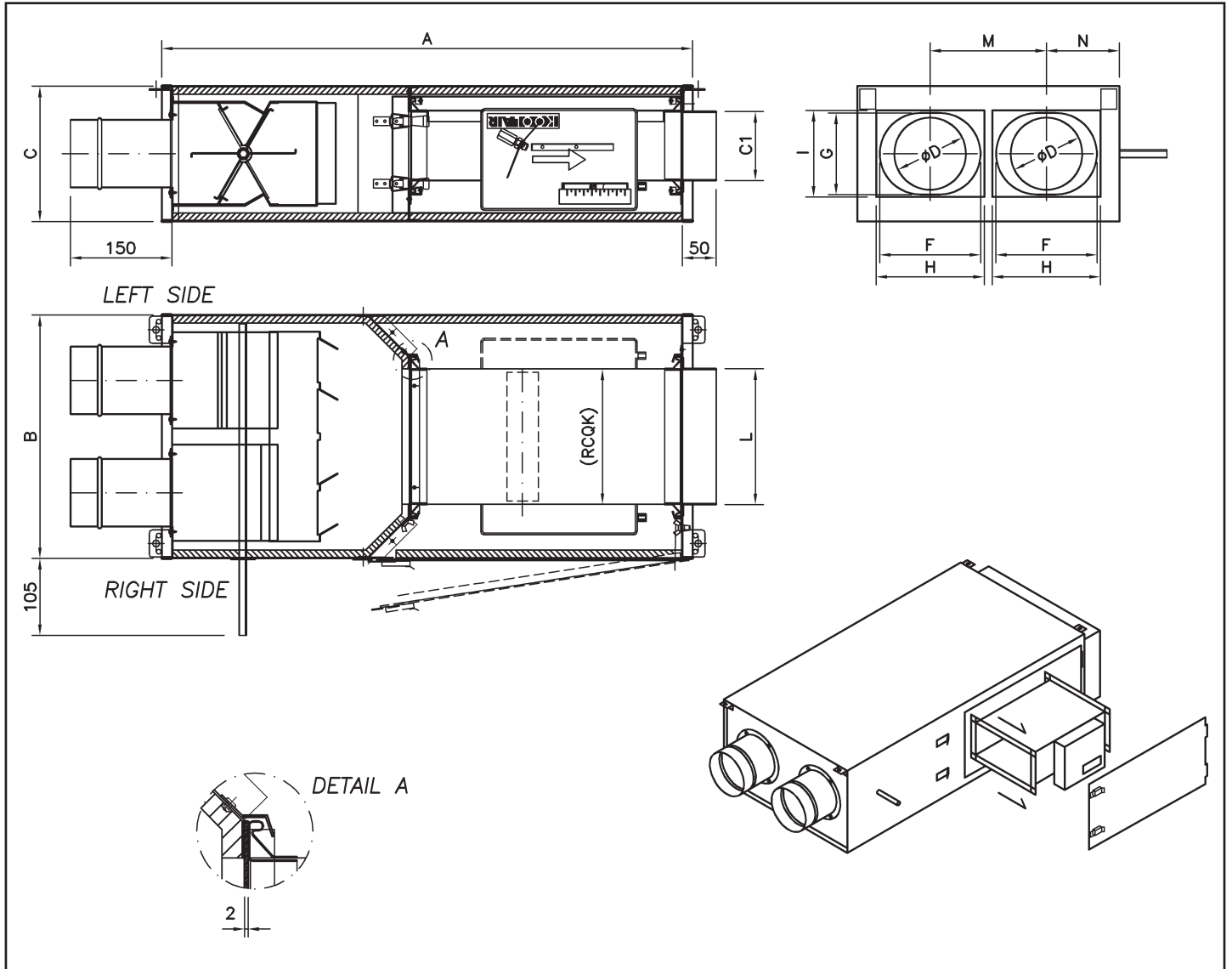
1. Cold air-inlet spigot.
2. Hot air-inlet spigot.
3. Interconnected control damper, with perimeter seals.
4. Electric or pneumatic actuator with proportional control signal.
5. Deflectors for efficient mixing of air.
6. Mechanical constant flow regulator (RCQK).
7. Attenuator section.
8. Air discharge section.
9. Thermo-acoustic fibreglass insulation 30 mm thick to the inner surface of box casing.
10. Hanging brackets for attachment.

KD terminal units may also incorporate water heating battery (KD-W) or electric heating battery (KD-E), secondary silencer and multiple outputs plenum.

Maintenance operations are performed on KD units from the outside without dismantling. Access to the regulation elements is from a handed access door on the side of the unit (customer to advise).

## Dimensions

KD MIXING BOX + RCQK.



SIZE	A	B	C	ØD	L	M	N	RCQK	C1	F	G	H	I
150	785	360	200	99	200	166	97	200x100	100	---	---	---	---
250	785	445	200	125	200	211	117	200x100	100	---	---	---	---
350	785	580	200	149	300	276	152	300x100	100	---	---	---	---
500	785	845	200	159	300	411	217	300x150	150	---	---	---	---
750	1015	580	305	199	300	276	152	300x200	200	---	---	---	---
1000	1015	845	305	199	300	411	217	300x200	200	---	---	---	---
1500	1015	980	305	249	400	476	252	400x200	200	---	---	---	---
2000	1015	1245	405	314*	600	609	318	600x250	250	349	249	---	---
3000	1220	980	405	354*	600	476	252	600x300	300	413	249	---	---
4000	1220	1460	405	405x355 **	1260	614	423	2(600x250)	250	---	---	405	355
5000	1220	1515	405	530x355 **	1260	743	386	2(600x300)	300	---	---	530	355

\* (Oval)

\*\* (Rectangular)

## Selection table.

### Description

Regenerated noise (air flow). Sound pressure level in dB (A) for different static pressures of air intake ducts considering attenuation and local characteristic of -10 dB. Ps min: minimum static pressure (air inlet)

Size	Q (l/s)	Q (m³/h)	P <sub>s</sub> min (Pa)	Regenerated Noise dB(A)				
				P <sub>min</sub>	250 Pa	500 Pa	750 Pa	1000 Pa
150	40	150	15	<20	27	28	29	30
	55	200	25	<20	30	31	33	34
	70	250	40	<20	32	33	35	36
	85	300	55	22	33	35	37	38
250	70	250	25	<20	30	33	35	37
	95	340	50	22	32	34	36	37
	120	420	75	25	34	36	37	39
	140	510	110	29	35	36	37	40
350	100	360	35	20	30	31	32	33
	135	480	60	24	32	34	35	36
	170	600	90	28	34	36	37	38
	200	710	135	32	35	38	39	40
500	140	510	45	23	30	33	35	36
	190	680	85	27	33	35	37	37
	235	850	130	32	35	37	39	40
	280	1020	190	35	36	40	41	42
750	210	760	40	24	29	31	33	34
	280	1020	80	29	33	36	38	39
	350	1270	125	33	37	41	42	43
	425	1530	180	37	38	43	44	45
1000	285	1020	60	24	28	30	31	32
	375	1360	115	29	32	33	34	35
	470	1700	175	33	35	36	37	38
	565	2040	240	37	37	38	39	40
1500	425	1530	80	24	29	31	34	35
	565	2040	135	29	33	35	36	37
	705	2550	205	34	35	37	38	40
	850	3060	288	37	36	41	42	43
2000	565	2040	80	25	29	32	34	35
	755	2720	140	30	33	35	37	38
	945	3400	210	34	36	38	40	41
	1135	4080	300	38	37	40	42	44
3000	350	3060	85	25	30	32	34	35
	1135	4080	150	31	33	37	39	40
	1415	5100	225	36	37	38	40	41
	1700	6120	325	41	39	43	44	45
4000	1130	4080	90	26	30	33	35	37
	1510	5440	155	32	34	38	40	42
	1890	6800	235	37	37	40	43	44
	2250	8160	335	41	39	43	45	46
5000	1415	5100	95	27	31	33	35	38
	1890	6800	150	32	34	38	41	43
	2360	8500	245	38	38	41	43	44
	2800	10200	350	43	40	44	46	47

### Sample selection:

Input data: Total airflow required out of KD dual duct box of 1300 m<sup>3</sup> / h, operating with a maximum static pressure difference of 250 Pa. Sound pressure permissible at the site of 40 dB (A) with an attenuation characteristic in the area and ductwork system of -10 dB (A).

Result: Model KD-RCQK-1000, with a regenerated noise level of 34 dB (A) at 250 Pa of inlet pressure.

### Coding:

- **KD-RCQK** KD-terminal unit RCQK dual duct mixing with constant flow regulator

- **Size** 500-750-1000-1500

- Air outlet plenum No indication equal to rectangular outlet as per drawing. If required insert number and diameters of the spigot connections required.

- **W** Water heating battery

- **E** Electric heating battery

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CIN-KD-0712-00



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