

KOOLAIR

series

KCRK

Constant air volume
regulators

ISO 9001

BUREAU VERITAS
Certification

Sistema de Gestión



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KCRK

Constant air volume regulator

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KCRK constant air volume regulators



Description

The circular constant flow control damper (with adjustable option) is a control component that functions independently of pressure and without an external power supply. It can be considered “self-regulating” at pressures between 30 and 250 Pa thus maintaining the necessary air volume flow. They are regulated from a pressure loss of 30 Pa, except diametre 80 that regulates in 50 Pa. Consequently, this air volume regulator make costly system balancing unnecessary by ensuring constant air volume. It includes an adjustment device to manually adjust the factory-set air volume flow on site.

Applications

It can be used either for ventilation or air conditioning in air supply or return ducts. Manufactured in ABS AF312A-class plastic material with flammability V0. Operating temperature limit: 60°C



Advantages

A number of advantages are available from KCRK series constant air volume regulators with air volume adjustment available when installed in a ventilation and/or air conditioning system, when compared to other air volume flow control systems (manual volume control dampers, diaphragms, etc.):

- System adjustment or balancing is not necessary.
- Air flow remains constant, regardless of any pressure variations present in the ductwork.
- Air flow can be adjusted on site.

Product codes

Article code: KCRK-xxx-yyy

xxx: size (diameter, in mm). Always code with 3 digits: 80 mm --- 080.

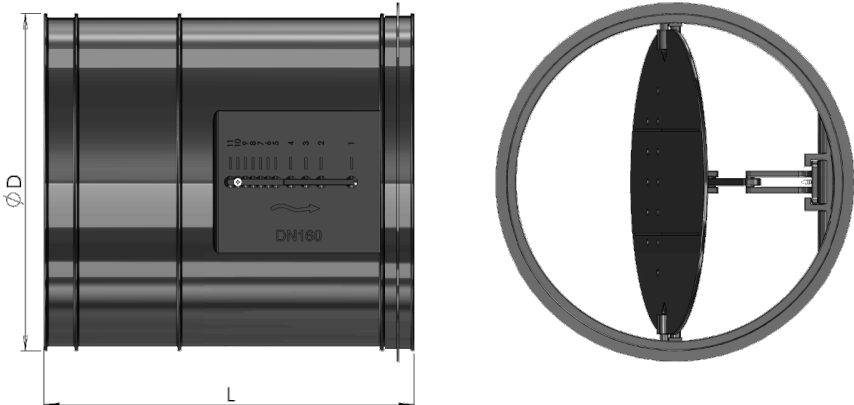
yyy: Air volume flow, in m³/h. Always code with 3 digits:

50 m³/h --- 050.


Order example: KCRK-080-050. KCRK constant air volume regulator, size 80 for a flow rate of 50 m³/h



Dimensions



SIZE	Ø D (mm)	L (mm)	m (kg)
80	78	94	0,07
100	98	113	0,12
125	122	145	0,18
150	146	160	0,27
160	156	171	0,30
200	196	201	0,49
250	246	242	0,80



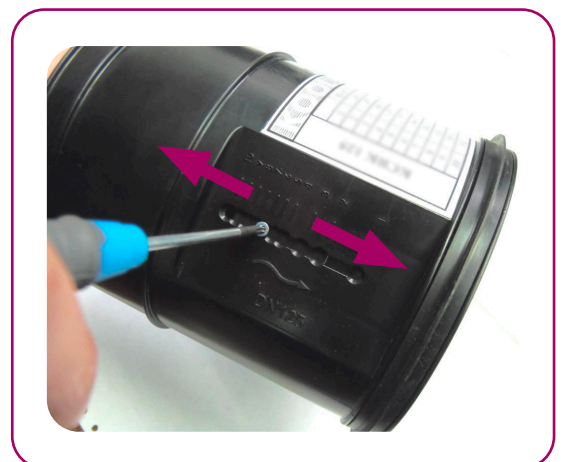
1. Body
2. Blade
3. Shock absorber
4. Gasket
5. Adjustment scale

Adjustment

If the factory-calibrated flow must be changed, take the following steps:

- The required flow rate must be known before the flow control damper is installed.
- Unscrew the flow rate setscrew by 2 turns, using a “Torx No. 9” screwdriver.
- Select the numerical position for the flow rate required by setting the screw to the respective number of the scale.
- Tighten the flow rate setscrew.

Air volume flows other than those listed can be obtained by placing the reference module in an intermediate position.



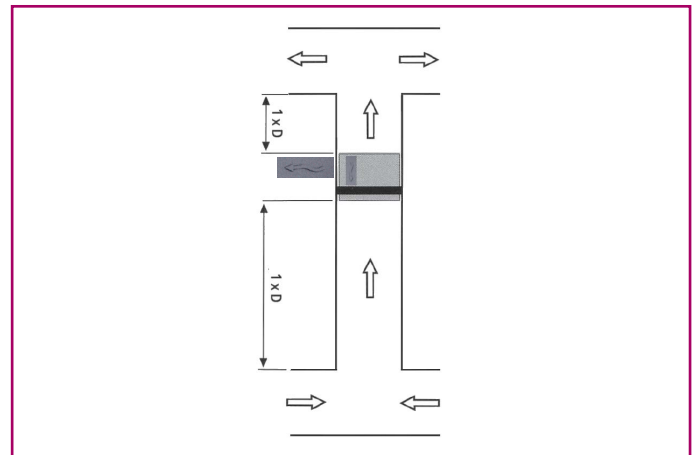
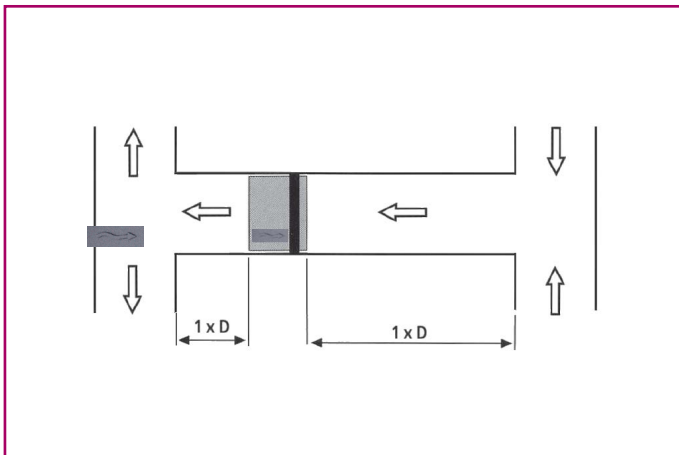
Mounting

- KCRK flow control dampers are designed to be installed inside ducts.
- Perfect coupling and tightness are ensured by the built-in seal.
- The flow direction shown on the regulator housing must be respected to ensure proper operation.



Arrow indicating air flow direction

- Can be installed horizontally or vertically.



- The scale to select the flow control damper must be positioned at the bottom, as shown in Figure 1.



Figure 1



Figure 2

Do not manipulate or press the internal moveable components during installation. The KCRK air volume regulator must allow access for maintenance. Affix the label to the outside of the duct to indicate the flow control damper setting. (Figure 2)

Selection Tables

Sound pressure levels at a differential pressure of 50 Pa

KCRK	Air flow m ³ /h	Air flow l/s	L _{PA} - dB(A)
Ø 80	22	6	28
	30	8	29
	45	13	29
	70	19	30
	85	24	30
Ø 100	36	10	28
	45	13	28
	70	19	30
	105	29	31
	128	36	32
Ø 125	50	14	28
	75	21	29
	115	32	30
	155	43	31
	185	51	32
Ø 150	70	19	27
	125	35	29
	180	50	30
	205	57	31
	260	72	31
Ø 160	90	25	28
	118	33	29
	172	48	29
	250	69	30
	360	100	31
Ø 200	115	32	27
	148	41	27
	275	76	29
	395	110	29
	550	153	30
Ø 250	185	51	26
	289	80	26
	423	118	27
	559	155	28
	665	185	28

The table provides an initial selection by including a range of 5 flow rates from minimum to maximum.

L_{PA} = Sound pressure level in the room expressed as dB(A) due to regenerated sound in the flow control damper, producing duct and room attenuation of 8 dB/octave.

Flow rate precision: approx. ± 10% of the nominal flow rate.

Range of flow rates by size

Flow rate setpoint values available, by size.

A default flow rate is set in the factory. The client can adjust the flow rate settings according to the setpoint position assigned. The attached table lists the flow rates for each setpoint according to size.

KCRK	Pos	Air flow m ³ /h	Air flow l/s	KCRK	Pos	Air flow m ³ /h	Air flow l/s
Ø 80	1	22	6	Ø 160	1	90	25
	2	30	8		2	103	29
	3	37	10		3	118	33
	4	45	13		4	140	39
	5	55	15		5	172	48
	6	70	19		6	192	53
	7	85	24		7	218	61
Ø 100	1	36	10		8	250	69
	2	40	11		9	280	78
	3	45	13		10	315	88
	4	58	16		11	360	100
	5	70	19	Ø 200	1	115	32
	6	80	22		2	130	36
	7	105	29		3	148	41
	8	128	36		4	175	49
Ø 125	1	50	14		5	220	61
	2	55	15		6	275	76
	3	63	18		7	315	88
	4	75	21	8	355	99	
	5	86	24	9	395	110	
	6	96	27	10	450	125	
	7	115	32	11	495	138	
	8	132	37	12	550	153	
	9	155	43	Ø 250	1	185	51
	10	185	51		2	205	57
Ø 150	1	70	19		3	250	69
	2	80	22		4	289	80
	3	90	25		5	336	93
	4	100	28		6	392	109
	5	125	35		7	423	118
	6	145	40		8	466	129
	7	160	44		9	500	139
	8	180	50		10	559	155
	9	205	57		11	600	167
	10	230	64	12	665	185	
	11	260	72				

Sound data

Sound power values at duct outlet.

The following tables indicate the sound power spectrum, expressed as dB/octave, for each size with different flow rates and static pressures at the regulator intake as the result of regenerated noise.

The measurements were completed in a reverberation chamber as per UNE-EN-ISO 3741 and UNE-EN-ISO 5135.

REGENERATED NOISE			p = 50 Pa										p = 100 Pa							
KCRK	Q m ³ /h	Q l/s	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _w - dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _w - dB(A)
Ø 80	22	6	30	30	31	38	34	27	21	23	38	36	36	37	44	39	33	27	28	44
	30	8	31	31	31	38	34	28	22	23	39	36	37	37	44	40	33	28	29	44
	45	13	31	31	32	39	35	28	22	24	39	37	37	38	45	40	34	28	29	45
	70	19	32	32	32	40	35	29	23	24	40	38	38	38	45	41	35	29	30	46
	85	24	32	32	33	40	36	29	23	25	40	38	38	38	46	41	35	29	30	46
Ø 100	36	10	30	30	30	37	33	27	21	22	38	36	36	37	44	40	33	28	29	44
	45	13	31	31	31	38	34	27	22	23	38	37	37	38	45	40	34	28	29	45
	70	19	32	32	32	40	35	29	23	24	40	39	39	39	46	42	35	30	31	46
	105	29	33	33	34	41	37	30	24	26	41	40	40	40	48	43	37	31	32	48
	128	36	34	34	34	42	37	31	25	26	42	41	41	41	48	44	37	32	33	48
Ø 125	50	14	30	30	30	37	33	27	21	22	38	37	37	38	45	41	34	28	30	45
	75	21	31	31	31	39	34	28	22	23	39	39	39	39	46	42	35	30	31	46
	115	32	32	32	33	40	36	29	23	25	40	40	40	40	48	43	37	31	32	48
	155	43	33	33	34	41	37	30	24	26	41	41	41	41	48	44	38	32	33	49
	185	51	34	34	34	42	37	31	25	26	42	41	41	42	49	45	38	32	34	49
Ø 150	70	19	29	29	29	37	32	26	20	21	37	36	36	37	44	39	33	27	28	44
	125	35	31	31	31	39	34	28	22	23	39	38	38	39	46	41	35	29	30	46
	180	50	32	32	33	40	36	29	23	25	40	39	39	40	47	43	36	31	32	47
	205	57	33	33	33	40	36	30	24	25	41	40	40	40	48	43	37	31	32	48
	260	72	34	34	34	41	37	30	25	26	41	41	41	41	48	44	38	32	33	49
Ø 160	90	25	36	34	37	34	34	28	23	24	38	44	42	45	42	42	36	31	32	46
	118	33	37	35	38	35	35	29	23	25	39	45	43	46	43	43	37	31	32	46
	172	48	38	36	39	36	36	30	24	25	39	46	44	47	44	44	38	32	33	47
	250	69	39	37	39	37	37	31	25	26	40	46	44	47	45	44	38	33	34	48
	360	100	39	37	40	37	37	31	26	27	41	47	45	48	45	45	39	34	35	49
Ø 200	115	32	35	33	36	33	33	27	21	22	36	43	41	44	41	41	35	30	31	45
	148	41	36	33	36	34	33	28	22	23	37	44	42	45	42	42	36	30	32	46
	275	76	37	35	38	35	35	29	23	25	39	45	43	46	44	43	38	32	33	47
	395	110	38	36	39	36	36	30	24	25	39	46	44	47	44	44	38	33	34	48
	550	153	39	37	40	37	37	31	25	26	40	47	45	48	45	45	39	34	35	49
Ø 250	185	51	34	32	35	32	32	26	20	21	35	42	40	43	40	40	34	28	30	44
	289	80	35	33	36	33	33	27	21	22	36	43	41	44	41	41	35	29	30	44
	423	118	36	33	36	34	33	28	22	23	37	44	42	44	42	42	36	30	31	45
	559	155	36	34	37	34	34	28	22	24	38	44	42	45	42	42	36	31	32	46
	665	185	36	34	37	34	34	28	23	24	38	44	42	45	42	42	36	31	32	46

Sound data

REGENERATED NOISE			ρ = 150 Pa									ρ = 200 Pa								
KCRK	Q m ³ /h	Q l/s	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _w - dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _w - dB(A)
Ø 80	22	6	39	39	40	47	43	36	30	32	47	42	42	42	49	45	39	33	34	50
	30	8	40	40	40	47	43	37	31	32	48	42	42	43	50	45	39	33	34	50
	45	13	40	40	41	48	44	37	31	33	48	43	43	43	50	46	40	34	35	51
	70	19	41	41	42	49	44	38	32	33	49	43	43	44	51	47	40	34	36	51
	85	24	41	41	42	49	45	38	32	34	49	44	44	44	51	47	41	35	36	51
Ø 100	36	10	40	40	41	48	44	37	31	33	48	43	43	44	51	46	40	34	35	51
	45	13	41	41	42	49	44	38	32	33	49	44	44	44	52	47	41	35	36	52
	70	19	43	43	43	50	46	39	34	35	50	45	45	46	53	49	42	36	38	53
	105	29	44	44	44	52	47	41	35	36	52	47	47	47	54	50	43	38	39	54
	128	36	45	45	45	52	48	41	36	37	52	47	47	48	55	51	44	38	40	55
Ø 125	50	14	42	42	42	49	45	39	33	34	49	45	45	45	52	48	42	36	37	53
	75	21	43	43	43	51	46	40	34	35	51	46	46	47	54	49	43	37	38	54
	115	32	44	44	45	52	48	41	35	37	52	47	47	48	55	51	44	38	40	55
	155	43	45	45	46	53	48	42	36	38	53	48	48	49	56	52	45	39	41	56
	185	51	46	46	46	53	49	43	37	38	54	49	49	49	57	52	46	40	41	57
Ø 150	70	19	40	40	41	48	44	37	31	33	48	43	43	44	51	47	40	34	36	51
	125	35	42	42	43	50	46	39	33	35	50	45	45	46	53	49	42	36	38	53
	180	50	44	44	44	51	47	41	35	36	51	47	47	47	54	50	44	38	39	54
	205	57	44	44	45	52	47	41	35	36	52	47	47	48	55	50	44	38	39	55
	260	72	45	45	45	53	48	42	36	37	53	48	48	48	56	51	45	39	40	56
Ø 160	90	25	49	47	50	47	47	41	35	36	50	52	50	53	50	50	44	39	40	54
	118	33	49	47	50	48	47	41	36	37	51	53	51	54	51	51	45	39	40	54
	172	48	50	48	51	48	48	42	37	38	52	53	51	54	52	51	46	40	41	55
	250	69	51	49	52	49	49	43	37	39	53	54	52	55	52	52	46	41	42	56
	360	100	52	50	53	50	50	44	38	39	53	55	53	56	53	53	47	42	43	57
Ø 200	115	32	48	46	49	46	46	40	35	36	50	52	50	53	50	50	44	38	39	53
	148	41	49	47	50	47	47	41	35	36	51	53	50	53	51	50	45	39	40	54
	275	76	50	48	51	49	48	42	37	38	52	54	52	55	52	52	46	40	41	56
	395	110	51	49	52	49	49	43	38	39	53	55	53	56	53	53	47	41	42	56
	550	153	52	50	53	50	50	44	39	40	54	56	54	56	54	54	48	42	43	57
Ø 250	185	51	47	45	48	45	45	39	33	34	48	50	48	51	48	48	42	37	38	52
	289	80	48	46	48	46	46	40	34	35	49	51	49	52	49	49	43	37	38	52
	423	118	48	46	49	46	46	40	35	36	50	52	50	53	50	50	44	38	39	53
	559	155	49	47	50	47	47	41	35	36	50	52	50	53	50	50	44	39	40	54
	665	185	49	47	50	47	47	41	36	37	51	52	50	53	51	50	45	39	40	54

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