



## VARIABLE AIRFLOW RECTANGULAR REGULATORS

CL-VRR  
SERIES

### OVERVIEW

#### Overview :

The CL-VRR series regulators are terminal regulation units for the flow of air to be used in single duct systems with functional range between 20 and 1000 Pa.

These regulators are used to control and maintain the quantity of air in variable air flow systems.

The complete shut off is certified to EN 1751-EN 1886 standards.

The auto-generated and irradiated noise tests have been carried out to UNI EN 25135 and ISO 3741 standards at the Giordano Institute (test report N. 153262 and 154143).

#### Technical Characteristics:

The CL-RPV regulators are assemble from:

- casing in galvanized steel in different dimension corresponding to the standard sizes of rectangular air ducts.
- Air flow regulation damper in galvanized steel with longitudinal and lateral holding gaskets.
- Dynamic  $\Delta p$  probe for the measure and maintenance of the flow of air in relation to that requested in the room.
- motor regulator in linear with the regulation and control of the flow.

#### Applications :

The CL-VRR series regulators are used to supply a variable flow of air to the room to be conditioned, in relation to the variation of its thermal loads so as to maintain the maximum thermal comfort conditions. The auto-generated and irradiated noise tests have been carried out to EN ISO 3741 standards.

#### Text for tender:

Rectangular variable air flow regulator for use in single duct systems, model CL-VRR manufactured by MP3 Srl, constructed in galvanized steel, complete of differential pressure detector, temperature probe, regulator and actuator.

#### Accessories :

- double casing
- additional silencer

#### Uses :

With motors:

- Siemens GDB181.1/E3;
- Belimo NMV-D2MPVC;
- Belimo LMV-D2MPVC;
- Belimo NM24V + reg. VRD2;
- Other motor types to be agreed at quotation stage.

The regulators are supplied, as standard, complete with motors from our test benches according to customer request.

For requests without motor, that will in any case have to be calibrated and applied by the customer, MP3 can not in any way guarantee the correct functioning of the apparatus.



## VARIABLE AIRFLOW RECTANGULAR REGULATORS

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### WORKING PRINCIPLE

#### WORKING PRINCIPLE “INDEPENDENT PRESSURE”

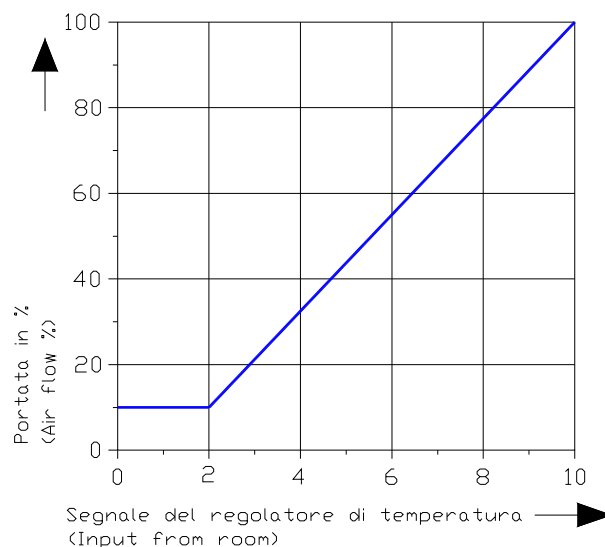
The regulation of the air flow is made by a dynamic pressure control system that can guaranty "the initial independence of the pressure". In so doing, all the requested air flow variations will not disturb the other air flows of other uses.

The control system is comprised of the following elements:

- Air flow measuring element
- Regulation element (the air flow regulator) that receives actual information relative to the measurement of the flow of air and to the request from the room.
- This regulator analyses the difference between the true measurement and that needed in the room so as to transmit a command to a specific motorised unit (the damper) that acts on the flow of air so as to obtain the final requested value by closing in the event of excess and opening in the event of lack of air.
- In the case of variable flow, the set point of the flow is variable from a maximum to a minimum value in relation to the regulation of the temperature;
- The system will always work so as to work the requested air flow in that moment to satisfy the room requirements.

#### EXCLUSIVE ADVANTAGES

- Variable air flow completely independent from the initial pressure
- Temperature regulation (not supplied) by a command signal with direct action (cold exit)
- Variation of the command signal:  $2 \pm 10v$ ,  $0 \pm 20v$  faze cut,  $0 \pm 10v$
- Minimum air flow 0V or at 2V
- Maximum 10V or 20V faze cut.
- Damper closure only with  $2 \pm 10V$  regulation.
- Ability to change the air flows on site.





## VARIABLE AIRFLOW RECTANGULAR REGULATORS

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### WORKING PRINCIPLE

#### Regulator calibration

For the calibration of the regulator CL-VRR it will be necessary to indicate the maximum and minimum flows requested for the intended use.

The **maximum air flow** must be lower or equal to the **nominal air flow** indicated table.

The **minimum air flow** will have to be:

- greater or equal to the 30% to the nominal value with Belimo motor NMV-D2MPVC;
- greater or equal to the 10% of the nominal value with the other proposed motors.

For requests without motor, that will in any case have to be calibrated and applied by the customer, MP3 can not in any way guarantee the correct functioning of the apparatus.

#### Installation arrangements

for a correct reading of the performances and for a air flow tolerance of 5%, it is necessary at the source to supply a straight section of duct of a length equal to three times the dimension of the larger size of the regulator. In the opposite

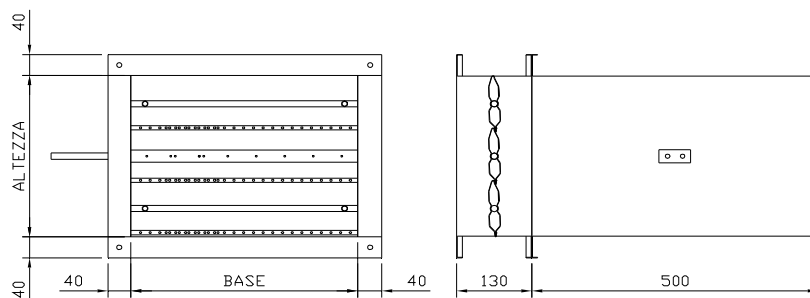
#### Leakages with closed damper:

The gasket, fitted on the perimeter of the damper, maintains a level of leakages through the damper below 0,1% of the nominal flow, with a maximum pressure of 1000 Pa.

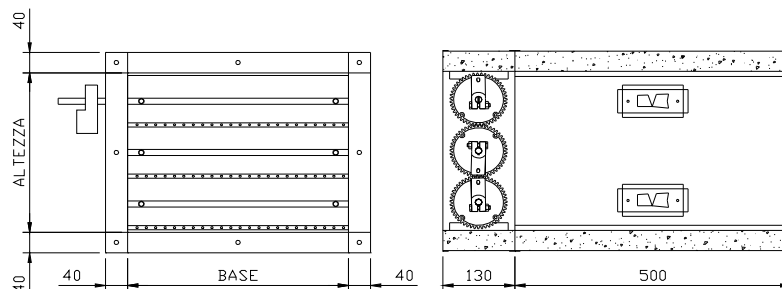
The shut off is certified to EN 1751-EN 1886 standard.

NOMINAL FLOWS	
BxH (mm)	nominal Q (m <sup>3</sup> /h)
200x110	750
400x110	1500
600x110	2300
400x210	3000
600x210	4500
800x210	6000
600x310	6600
800x310	8900
1000x310	11000
600x410	8800
800x410	11800
1000x410	14500

#### CL-VRR-N SERIES RECTANGULAR REGULATOR WITH SIMPLE CASING



#### CL-VRR-I SERIES RECTANGULAR REGULATOR WITH SIMPLE CASING





## VARIABLE AIRFLOW RECTANGULAR REGULATORS

CL-VRR  
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### TECHNICAL DATA

#### AIR FLOW VALUE AND NOISE LOSS

The data for the generated and irradiated noise for the 600mm length, for various heights, are exposed for three values of static  $\Delta p$  of working. The irradiated noise has been measure with the simple casing regulator.

For the noise values of the regulators having a height different to 600mm, apply the correction values indicated at the bottom of the page.

GENERATED NOISE AND AIR FLOW LOSS						
BxH (mm)	Air flow (m <sup>3</sup> /h)	Speed (m/s)	dBa $\Delta P=200$ Pa	dBa $\Delta P=500$ Pa	dBa $\Delta P=1000$ Pa	$\Delta p_{min}$ (Pa)
600x110	460	2	57	62	69	20
	1380	6	59	68	75	25
	2300	10	61	72	78	35
600x210	900	2	54	63	69	20
	2700	6	60	69	76	25
	4500	10	63	71	79	35
600x310	1320	2	57	63	70	20
	3960	6	58	67	75	25
	6600	10	62	70	78	35
600x410	1760	2	55	66	74	20
	5280	6	62	69	77	25
	8800	10	64	72	79	35

IRRADIATED NOISE					
BxH (mm)	Air flow (m <sup>3</sup> /h)	Speed (m/s)	dBa $\Delta P=200$ Pa	dBa $\Delta P=500$ Pa	dBa $\Delta P=1000$ Pa
600x110	460	2	45	50	55
	1380	6	47	57	63
	2300	10	52	60	65
600x210	900	2	36	44	51
	2700	6	46	53	58
	4500	10	51	59	64
600x310	1320	2	49	58	66
	3960	6	47	58	66
	6600	10	53	60	67
600x410	1760	2	37	46	54
	5280	6	48	54	60
	8800	10	54	59	62

CORRECTIVE NOISE VALUES FOR BASES DIFFERENT TO 600mm						
Base (mm)	200	300	400	500	800	1000
dB	-4	-3	-2	-1	1	2

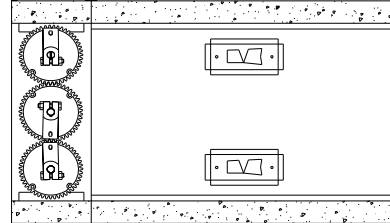
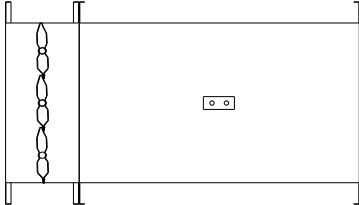
ROOM ABSORPTION: -8dB



## VARIABLE AIRFLOW RECTANGULAR REGULATORS

CL-VRR  
SERIES

STANDARD SIZES







### STANDARD REGULATOR SIZES SIMPLE CASING

SERIE	BxH mm
CL-VRR	200x110
CL-VRR	400x110
CL-VRR	600x110
CL-VRR	400x210
CL-VRR	600x210
CL-VRR	800x210
CL-VRR	600x310
CL-VRR	800x310
CL-VRR	1000x310
CL-VRR	600x410
CL-VRR	800x410
CL-VRR	1000x410

### STANDARD REGULATOR SIZES DOUBLE CASING

SERIE	BxH mm
CL-VRR	200x110
CL-VRR	400x110
CL-VRR	600x110
CL-VRR	400x210
CL-VRR	600x210
CL-VRR	800x210
CL-VRR	600x310
CL-VRR	800x310
CL-VRR	1000x310
CL-VRR	600x410
CL-VRR	800x410
CL-VRR	1000x410

OTHER SIZES ON REQUEST

AVAILABLE MOTORS	
	Siemens GDB181.1/E3
	Belimo LMV-D2MPVC
	Belimo NMV-D2MPVC
	Belimo NM24V + reg. VRD2

#### NOTE

A standard motorisation is non provided, it will be necessary to always indicated the requested motor.

For help in the choice of motors please contact our commercial office.



VARIABLE AIRFLOW  
RECTANGULAR REGULATORS

CL-VRR  
SERIES

CODES

ORDER CODES - REGULATORS				
CL-VRR	XXX	XXX	MD	(X)
rectang. regulators	base (cm)	height (cm)	supply right-hand motor	isulation N=simple casing I= double casing

ORDER CODES - MOTORS	
CL-VM	X
motor	model A=Siemens GDB18L1/E3 B=Belimo LMV-D2MPVC C=Belimo NMV-D2MPVC D=Belimo NM24V + reg. VRD2



## CIRCULAR REGULATORS WITH VARIABLE AIR FLOW

CL-VRC  
SERIES

### OVERVIEW

#### Overview :

The CL-VRC series of variable flow regulators are regulation units to be used in single duct systems. These regulators are used to control and maintain the air quantity in the systems with variable air flow. The complete shut off is certified to EN 1751-EN 1886 Standards.

#### Technical characteristics:

- The CL-VRC regulators are assembled from:
  - circular casing in galvanized steel with 125 and 400 mm diameters equal to the standard circular air ducts.
  - regulation damper in galvanized steel with hold gaskets to guarantee the maximum linearity in the regulation and level of minimal noise.
  - Dynamic  $\Delta p$  probe for the measure and maintenance of the flow of air in relation to that requested in the room.
  - motor regulator in linear with the regulation and control of the flow.

#### Applications:

The CL-VRC series regulators are used to supply a variable flow of air to the room to be conditioned, in relation to the variation of its thermal loads so as to maintain the maximum thermal comfort conditions. The auto-generated and irradiated noise tests have been carried out to EN ISO 3741 standards.

#### Text for tender:

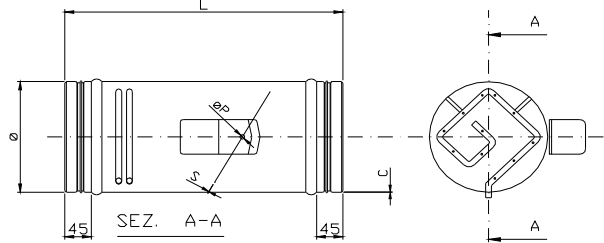
Circular regulator with variable air flow for single duct for supply or extraction of air model CL-VRC manufactured by MP3 Srl, made in galvanized steel complete of differential pressure detector, temperature probe, regulator and actuator.

#### Accessories :

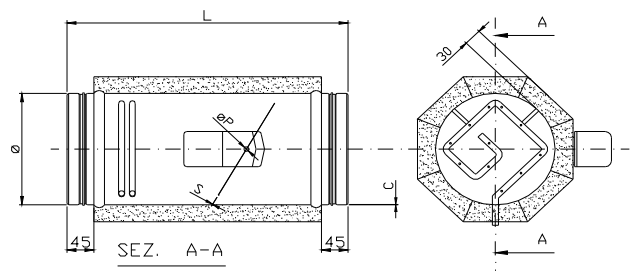
- double casing
  - equalizing net to be installed at the entrance to better spread the flow of air
  - additional silencer L=500mm or L=1000mm
- The regulators are supplied, as standard, complete with motors from our test benches according to customer request.

For requests without motor, that will in any case have to be calibrated and applied by the customer, MP3 can not in any way guarantee the correct functioning of the apparatus.

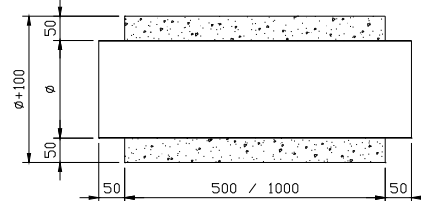
Variable air flow regulator CL-VRC-N



Variable air flow regulator with double casing CL-VRC-I



Additional silencer CL-VSC



Main dimensions :

Ø (mm)	Ø P (mm)	S (mm)	L (mm)	C (mm)
125	8	0,6	370	0,8
160	8	0,6	415	0,8
200	8	0,6	470	0,8
250	8	1,2	540	0,8
315	12	1,2	630	0,8
355	12	1,2	685	0,8
400	12	1,2	750	0,8

#### Executions :

With motor:

- Siemens GDB181.1/E3;
- Belimo NMV-D2MPVC;
- Belimo LMV-D2MPVC;
- Belimo NM24V + reg. VRD2;
- other motor types to be agreed at quotation stage..

Possibility of fitting for use in extraction with control of the static room  $\Delta p$  to guarantee negative or positive pressures in relation to the use of the room.

The regulators are supplied, as standard, complete with motors from our test benches according to customer request. For requests without motor, that will in any case have to be calibrated and applied by the customer, MP3 can not in any way guarantee the correct functioning of the apparatus.



## CIRCULAR REGULATORS WITH VARIABLE AIR FLOW

CL-VRC  
SERIES

### WORKING PRINCIPLES

#### WORKING PRINCIPLE "INDEPENDENT PRESSURE"

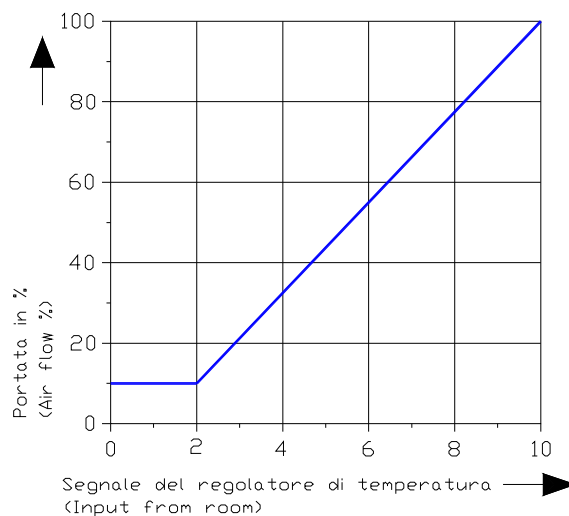
The regulation of the air flow is made by a dynamic pressure control system that can guaranty "the initial independence of the pressure". In so doing, all the requested air flow variations will not disturb the other air flows of other uses.

The control system is comprised of the following elements:

- Air flow measuring element (probe for dynamic  $\Delta p$ ).
- Regulation element (the air flow regulator) that receives actual information relative to the measurement of the flow of air and to the request from the room.
- This regulator analyses the difference between the true measurement and that needed in the room so as to transmit a command to a specific motorised unit (the damper) that acts on the flow of air so as to obtain the final requested value by closing in the event of excess and opening in the event of lack of air.
- In the case of variable flow, the set point of the flow is variable from a maximum to a minimum value in relation to the regulation of the temperature;
- The system will always work so as to work the requested air flow in that moment to satisfy the room requirements.

#### EXCLUSIVE ADVANTAGES

- Variable air flow completely independent from the initial pressure
- Temperature regulation (not supplied) by a command signal with direct action (cold exit)
- Variation of the command signal: 2÷10v, 0÷20v faze cut, 0÷10v
- Minimum air flow 0V or at 2V
- Maximum 10V or 20V faze cut.
- Damper closure only with 2÷10V regulation.
- Ability to change the air flows on site.





## CIRCULAR REGULATORS WITH VARIABLE AIR FLOW

CL-VRC  
SERIES

### PERFORMANCE

#### Regulator calibration

For the calibration of the regulator CL-VRC it will be necessary to indicate the maximum and minimum flows requested for the intended use.

The maximum air flow must be lower or equal to the nominal air flow indicated in the table.

The minimum air flow will have to be:

- greater or equal to the 30% to the nominal value with Belimo motor NMV-D2MPVC;
- greater or equal to the 10% of the nominal value with the other proposed motors;

In the absence of an indication of air flow, the regulator will be calibrated with maximum air flow equal to the nominal value.

Furthermore, it will be necessary to indicate the signal given from the sensor of the room temperature; 0-10V, 2-10V, three point or other.

When necessary, it will be necessary to indicate the side on which it is required to install the controls in relation to the flow of air. In the absence of this information, the controls will be fitted on the right hand side in relation to the direction of the flow of air.

For requests without motor, that will in any case have to be calibrated and applied by the customer, MP3 can not in any way guarantee the correct functioning of the apparatus.

#### Installation arrangements:

for a correct reading of the performances and for a air flow tolerance of 5%, it is necessary at the source to supply a straight section of duct of a length equal to three times the dimension of the larger size of the regulator. In the opposite case, the air flow may be affected by a variation between 10% and 20% in comparison to the calibrated value.

#### Irradiated noise

The value of the irradiated noise (dispersed in the room) is obtained by applying the following correction factors to the value of the noise produces, shown in the following pages.

- $\Delta L$  values for a standard regulator
- $\Delta Li$  values for a regulator with double casing.

#### Pressure losses through a closed damper :

The air tight gasket, fitted on the perimeter of the damper, can maintain a level of pressure loss through it below 0.1% of the nominal air flow, with a maximum pressure of 1000 Pa.

The air tight hold is certified to EN 1751-EN 1886 standard.

NOMINAL AIR FLOWS	
Diameter (mm)	Nominal Q (m <sup>3</sup> /h)
125	570
160	950
200	1500
250	2300
315	3600
355	4800
400	6300

	FREQUENCY (Hz)								dB(A)*
	63	125	250	500	1000	2000	4000	8000	
$\Delta L$	-24	-16	-15	-12	-9	-8	-8	-7	-12
$\Delta li$	-27	-19	-18	-19	-24	-23	-23	-22	-19

\* average correction factor



## CIRCULAR REGULATORS WITH VARIABLE AIR FLOW

CL-VRC  
SERIES

### NOISE DATA

GENERATED NOISE											
Diameter mm	Q m <sup>3</sup> /h	NOISE POWER (Lw-db/ott.) Differential pressure Pa 200								Noise pressure dBA room attenuation: - 8 dBA	
		Frequency (Hz)									
		63	125	250	500	1000	2000	4000	8000		
125	70	41	38	39	39	39	36	29	23	35	
	250	50	50	52	51	48	44	38	31	44	
	450	55	56	58	56	51	47	42	34	49	
	660	58	60	61	60	54	50	44	36	52	
160	110	44	40	40	40	40	37	31	25	36	
	400	54	52	53	52	49	45	40	33	46	
	730	58	58	59	58	53	49	44	37	51	
	1100	61	62	63	61	56	51	46	39	54	
200	160	47	35	38	38	41	38	34	27	37	
	625	57	54	52	50	51	47	42	35	47	
	1150	61	62	59	56	55	51	46	38	52	
	1700	64	67	63	59	58	54	48	40	55	
250	250	47	46	44	42	44	38	30	29	39	
	970	59	58	55	54	51	47	42	37	48	
	1800	65	64	61	59	55	51	48	41	53	
	2650	68	67	64	62	57	54	51	43	56	
315	400	52	46	42	43	44	41	37	32	40	
	1550	63	59	56	55	53	49	46	40	50	
	2850	67	65	62	61	57	53	50	43	54	
	4200	70	68	66	64	59	55	52	45	57	
355	500	52	45	44	42	45	42	39	33	41	
	2000	63	62	56	58	57	48	48	42	51	
	3700	67	65	62	61	57	53	50	43	54	
	5400	70	68	66	64	59	55	52	45	57	
400	648	50	48	43	44	44	43	38	34	41	
	2500	65	63	55	59	58	52	50	44	52	
	4550	72	66	62	61	58	54	52	47	56	
	6600	77	69	66	65	61	56	55	50	59	



## CIRCULAR REGULATORS WITH VARIABLE AIR FLOW

CL-VRC  
SERIES

### NOISE DATA

GENERATED NOISE											
Diameter mm	Q m <sup>3</sup> /h	NOISE POWER (Lw-db/ott.) Differential pressure Pa 500								Noise pressure dBA room attenuation: - 8 dBA	
		Frequency (Hz)									
		63	125	250	500	1000	2000	4000	8000		
125	70	44	42	44	47	48	45	40	37		44
	250	54	54	57	58	57	53	49	44		53
	450	59	60	63	64	61	57	53	47		57
	660	62	64	67	67	64	59	56	49		60
160	110	47	45	45	48	49	47	42	38		45
	400	58	57	58	59	58	54	51	45		54
	730	62	63	65	65	62	58	55	49		59
	1100	66	66	69	69	65	60	58	51		62
200	160	51	41	44	45	49	48	44	39		46
	625	61	59	58	57	59	57	52	47		55
	1150	65	67	65	63	63	62	56	50		60
	1700	68	73	69	66	66	64	59	53		63
250	250	52	52	51	50	53	48	40	40		48
	970	64	64	62	62	61	57	52	48		57
	1800	69	69	68	67	64	61	57	51		61
	2650	73	73	71	70	66	64	61	54		64
315	400	56	51	47	49	51	50	45	43		48
	1550	67	64	61	62	61	58	55	50		58
	2850	72	70	68	67	65	62	59	54		62
	4200	75	72	71	69	66	62	60	58		64
355	500	56	53	46	51	52	53	44	44		49
	2000	67	64	61	62	61	58	55	50		58
	3700	72	74	67	70	66	66	57	56		63
	5400	75	74	72	71	68	64	62	56		65
400	648	53	53	49	50	52	52	46	44		49
	2500	69	66	62	62	62	59	56	53		59
	4550	76	71	68	67	66	63	61	57		63
	6600	80	75	71	71	69	65	63	60		66



## CIRCULAR REGULATORS WITH VARIABLE AIR FLOW

CL-VRC  
SERIES

### NOISE DATA

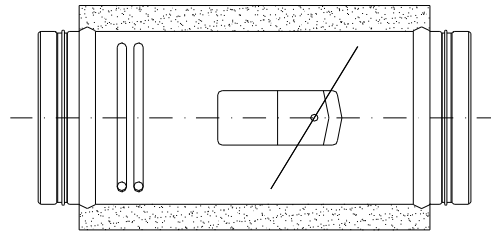
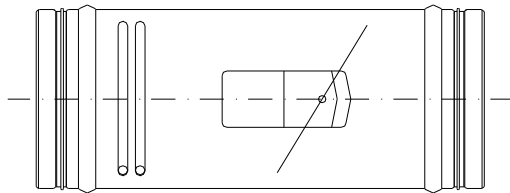
GENERATED NOISE											
Diameter mm	Q m <sup>3</sup> /h	NOISE POWER (Lw-db/ott.) Differential pressure Pa 1000								NOISE PRESSURE dBA room attenuation: - 8 dBA	
		Frequency (Hz)									
		63	125	250	500	1000	2000	4000	8000		
125	70	47	45	48	53	55	52	48	46	51	
	250	58	57	61	64	64	60	57	53	60	
	450	63	63	67	69	68	64	62	57	64	
	660	66	67	71	73	71	66	64	59	67	
160	110	50	48	49	53	56	54	49	47	52	
	400	61	60	62	65	65	61	58	55	61	
	730	66	66	69	70	69	65	63	58	65	
	1100	69	70	73	74	72	67	66	60	68	
200	160	54	45	48	50	55	56	52	49	53	
	625	64	63	63	62	65	65	60	56	62	
	1150	68	71	69	68	69	69	64	60	67	
	1700	71	77	73	71	72	72	66	62	69	
250	250	55	56	56	56	61	56	48	48	55	
	970	67	68	68	67	68	65	59	56	64	
	1800	73	74	73	73	71	69	65	59	68	
	2650	76	76	74	74	73	72	67	61	70	
315	400	59	55	51	54	58	57	51	52	54	
	1550	70	68	66	66	68	65	61	59	64	
	2850	75	74	72	72	72	69	66	63	68	
	4200	78	78	76	75	75	71	68	65	71	
355	500	58	56	52	55	58	56	52	53	55	
	2000	70	69	67	67	67	66	62	61	65	
	3700	75	75	73	73	73	68	67	66	69	
	5400	79	77	77	76	74	72	67	66	71	
400	648	55	58	53	54	58	58	52	52	55	
	2500	71	70	66	66	68	66	62	61	65	
	4550	78	75	72	72	73	70	67	65	69	
	6600	82	79	76	75	75	72	69	67	71	



## CIRCULAR REGULATORS WITH VARIABLE AIR FLOW




**CL-VRC  
SERIES**

STANDARD SIZES



STANDARD SIZE REGULATORS SIMPLE CASING	
SERIES	Ø mm
CL-VRC	125
CL-VRC	160
CL-VRC	200
CL-VRC	250
CL-VRC	315
CL-VRC	355
CL-VRC	400

STANDARD SIZE REGULATORS DOUBLE CASING	
SERIES	Ø mm
CL-VRC	125
CL-VRC	160
CL-VRC	200
CL-VRC	250
CL-VRC	315
CL-VRC	355
CL-VRC	400

AVAILABLE MOTORS	
	Siemens GDB181.1/E3
	Belimo LMV-D2MPVC
	Belimo NMV-D2MPVC
	Belimo NM24V + reg. VRD2

**NOTE**

A standard motorisation is non provided, it will be necessary to always indicated the requested motor.

For help in the choice of motors please contact our commercial office.

ORDER CODES - REGULATORS				
CL-VRC	XXX	X	X	X
circular regulator	diameter (mm)	flow M=supply R=extraction	fixing D=right S=left	insulation N=simple casing I=double casing

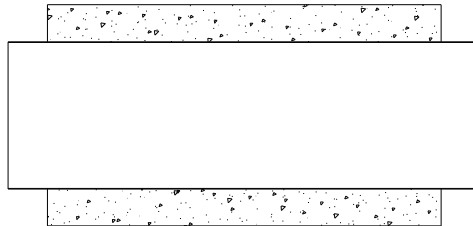
ORDER CODES - MOTORS	
CL-VM	X
motor	model A=Siemens GDB181.1/E3 B=Belimo LMV-D2MPVC C=Belimo NMV-D2MPVC D=Belimo NM24V + reg. VRD2



## CIRCULAR REGULATORS WITH VARIABLE AIR FLOW

ACCESSORIES

CL-VRC  
SERIES



ADDITIONAL SILENCERS		
SERIES	DIAMETER	LENGTH
	mm	mm
CL-VSC125500	125	500
CL-VSC160500	160	500
CL-VSC200500	200	500
CL-VSC250500	250	500
CL-VSC315500	315	500
CL-VSC355500	355	500
CL-VSC400500	400	500
CL-VSC125100	125	1000
CL-VSC1601000	160	1000
CL-VSC2001000	200	1000
CL-VSC2501000	250	1000
CL-VSC3151000	315	1000
CL-VSC3551000	355	1000
CL-VSC4001000	400	1000

EQUALIZING NETS	
SERIES	DIAMETERS
	mm
CL-VRE125	125
CL-VRE160	160
CL-VRE200	200
CL-VRE250	250
CL-VRE315	315
CL-VRE355	355
CL-VRE400	400



## VARIABLE AIR FLOW UNITS

CL-VCC  
CL-VCL  
SERIES

### OVERVIEW

#### Overview :

The CL-VCC and CL-VC variable air flow models are regulation units to be used in single duct ventilation systems with a working range between 20 and 1500 Pa. These regulators are used to control and maintain the quantity of air in variable air flow systems.

The complete closure of the air flow is certified to EN 1751-EN 1886 standard.

The tightness of the envelope i class C till 800Pa and class B greater pressures as per UNI EN 12589

#### Technical characteristics:

The CL-VCC and CL-VCL models are composed of:

- casing in galvanized steel with hanging hook for fitting by bars or specific fixing bars;
- round entry port on the faster air flow side dynamic  $\Delta p$  probe to measure and maintain the air flow in relation to that requested in the room;
- rectangular exit port on low air speed side;
- silencer section with sound absorbing material in rock wool covered with black glass felt, with M0 fire resistance;
- round airtight regulation damper with gaskets;
- Regulation with motorised linear control.

#### Applications:

The CL-VCC and CL-VCC units are used to supply a variable air flow in the room to be conditioned in relation to the variation of its thermal loads in order to maintain the best possible temperature comfort.

The tests for the self-generated and irradiated noise have been carried out to EN ISO 3741 standards.

#### Product description for projects:

SHORT MODEL variable air flow unit for single duct systems in supply or extraction. Model CL-VCC manufactured by MP3 Srl, made in galvanized steel complete with differential pressure detector, temperature probe, regulator and actuator.

EXTRA SILENT MODEL variable air flow unit for single duct systems in supply or extraction. Model CL-VCL manufactured by MP3 Srl, made in galvanized steel complete with differential pressure detector, temperature probe, regulator and actuator.

#### Accessories:

- water or electric post-heating coil;
  - additional silencer;
  - double casing;
  - equalizing net to be fitted at the entry port to better distribute the flow of air.
  - micro perforated net protection for the sound absorbing material;
- Other covers, even with fibre class material, can be proposed in the offer phase.

#### Performance:

With motor:

- Siemens GDB181.1/E3;
  - Belimo NMV-D2MPVC;
  - Belimo LMV-D2MPVC;
  - Belimo NM24V + reg. VRD2;
- Other motorisations may be agreed in the quotation.

It may be possible to fit the unit for use in extraction with the control of the static room  $\Delta p$  to guarantee negative or positive pressures in relation to the use of the space.

The units are supplied, as standard, complete with motors from our test benches according to customer request.

For requests without motor, that will in any case have to be calibrated and applied by the customer, MP3 can not in any way guarantee the correct functioning of the apparatus.



Tightness test for the envelope



## VARIABLE AIR FLOW UNITS

CL-VCC  
CL-VCL  
SERIES

### WORKING PRINCIPLES

#### WORKING PRINCIPLE "INDEPENDENT PRESSURE"

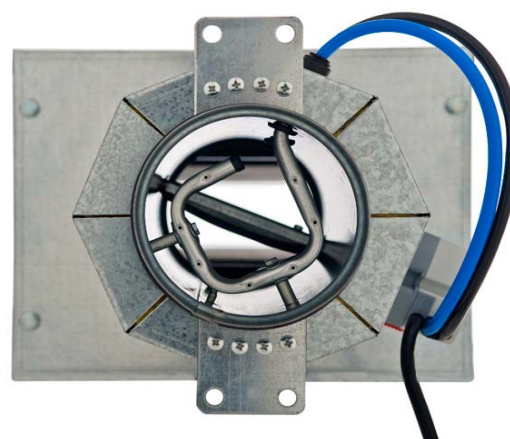
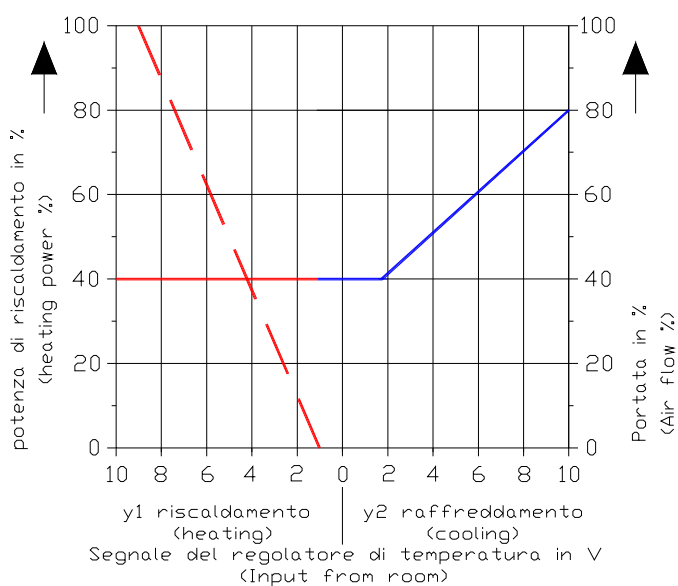
The regulation of the air flow is made by a dynamic pressure control system that can guaranty "the initial independence of the pressure". In so doing, all the requested air flow variations will not disturb the other air flows of other uses.

The control system is comprised of the following elements:

- Air flow measuring element
- Regulation element (the air flow regulator) that receives actual information relative to the measurement of the flow of air and to the request from the room.
- This regulator analyses the difference between the true measurement and that needed in the room so as to transmit a command to a specific motorised unit (the damper) that acts on the flow of air so as to obtain the final requested value by closing in the event of excess and opening in the event of lack of air.
- In the case of variable flow, the set point of the flow is variable from a maximum to a minimum value in relation to the regulation of the temperature;
- The system will always work so as to work the requested air flow in that moment to satisfy the room requirements.

#### EXCLUSIVE ADVANTAGES

- Variable air flow completely independent from the initial pressure
- Temperature regulation (not supplied) by a command signal with direct action (cold exit)
- Variation of the command signal:  $2 \pm 10v$ ,  $0 \pm 20v$  faze cut,  $0 \pm 10v$
- Minimum air flow 0V or at 2V
- Maximum 10V or 20V faze cut.
- Damper closure only with  $2 \pm 10V$  regulation.
- Ability to change the air flows on site.



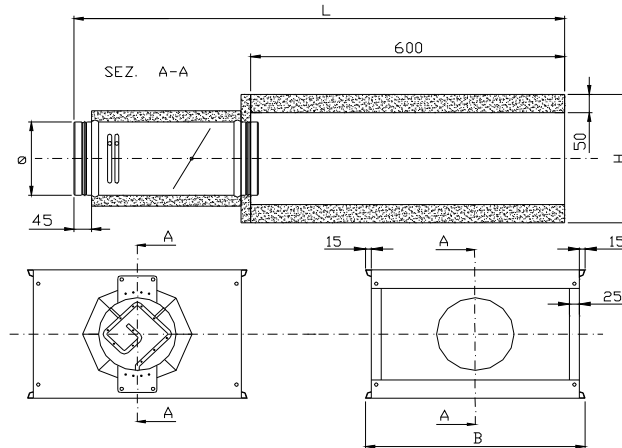


## VARIABLE AIR FLOW UNITS

### TECHNICAL CHARACTERISTICS

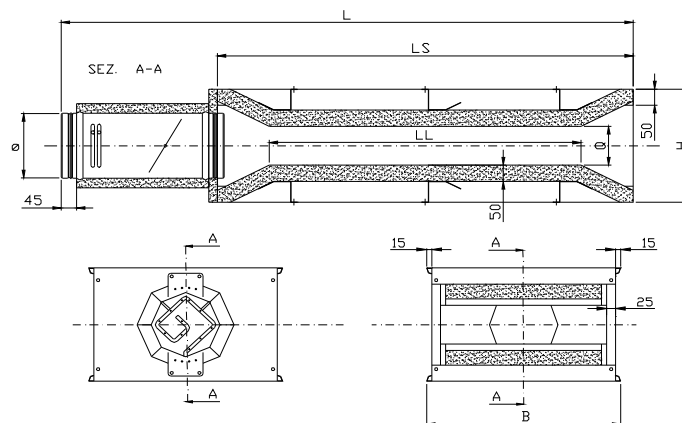
CL-VCC  
CL-VCL  
SERIES

#### SHORT MODEL CL-VCC UNITS



Ø (mm)	B (mm)	H (mm)	L (mm)
125	380	270	950
160	380	270	995
200	560	360	1050
250	560	360	1120
315	780	460	1210
355	780	460	1265
400	980	510	1330

#### EXTRA SILENT CL-VCL UNITS WITH SIMPLE CASING



Optional: internal cover with protective micro perforated net for the sound absorbing material

Ø (mm)	B (mm)	H (mm)	L (mm)	Q (mm)	LS (mm)	LL (mm)
125	380	270	1350	90	1000	800
160	380	270	1395	90	1000	800
200	560	360	1650	130	1200	900
250	560	360	1720	130	1200	900
315	780	460	2010	180	1400	1000
355	780	460	2065	180	1400	1000
400	980	510	2230	230	1500	1100

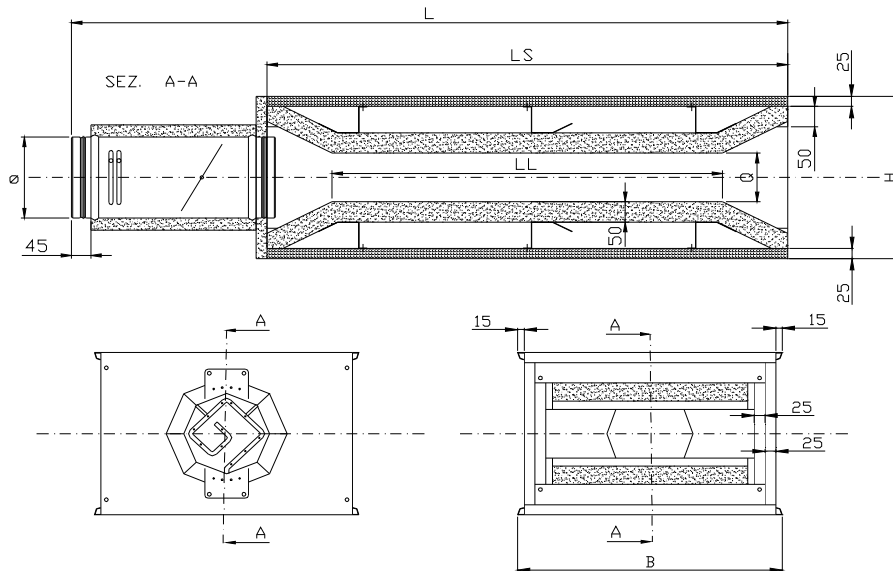


## VARIABLE AIR FLOW UNITS

### TECHNICAL CHARACTERISTICS

CL-VCC  
CL-VCL  
SERIES

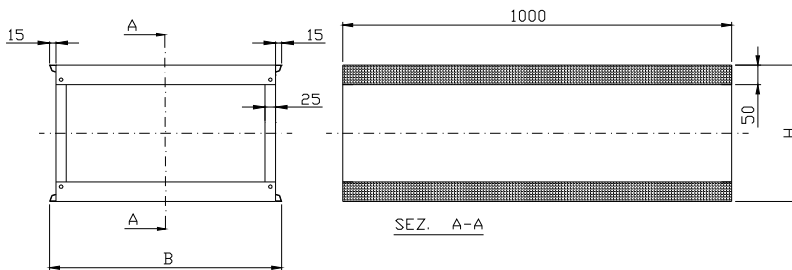
#### EXTRA SILENT MODEL CL-VCL UNIT WITH DOUBLE CASING



Optional: internal cover with protective micro perforated net for the sound absorbing material

Ø (mm)	B (mm)	H (mm)	L (mm)	Q (mm)	LS (mm)	LL (mm)
125	430	320	1350	90	1000	800
160	430	320	1395	90	1000	800
200	610	410	1650	130	1200	900
250	610	410	1720	130	1200	900
315	830	510	2010	180	1400	1000
355	830	510	2065	180	1400	1000
400	1030	560	2230	230	1500	1100

#### ADDITIONAL SILENCER CL-VSR



Ø (mm)	B (mm)	H (mm)
125	380	270
160	380	270
200	560	360
250	560	360
315	780	460
355	780	460
400	980	510



## VARIABLE AIR FLOW UNITS

CL-VCC  
CL-VCL  
SERIES



### PERFORMANCE

#### Regulator calibration and choice of motor

For the calibration of the CL-VCC and CL-VCL regulators, it will be necessary to indicate the maximum and minimum flows requested for the intended use.

The maximum air flow must be lower or equal to the nominal air flow indicated in the table.

The minimum air flow will have to be:

- greater or equal to the 30% to the nominal value with Belimo motor NMV-D2MPVC;
- greater or equal to the 10% of the nominal value with the other proposed motors;

Furthermore, it will be necessary to indicate the signal given from the sensor of the room temperature; 0-10V, 2-10V, three point or other.

When necessary, it will be necessary to indicate the side on which it is required to install the controls in relation to the flow of air. In the absence of this information, the controls will be fitted on the right hand side in relation to the direction of the flow of air.

For requests without motor, that will in any case have to be calibrated and applied by the customer, MP3 can not in any way guarantee the correct functioning of the apparatus.

#### Installation conditions:

For a correct reading of the performances and for a air flow tolerance of 5%, it is necessary at the source to supply a straight section of duct of a length equal to two to three times the dimension of the diameter of the regulator. In the opposite case, the air flow may be affected by a variation between 10% and 20% in comparison to the calibrated value.

#### Pressure losses through a closed damper :

The air tight gasket, fitted on the perimeter of the damper, can maintain a level of pressure loss through it below 0.1% of the nominal air flow, with a maximum pressure of 1000 Pa.

The air tight hold is certified to EN 1751-EN 1886 standard.

Diameter mm	Pressure loss Pa	Air speed m/s	Air flow m <sup>3</sup> /h
125	20	5,8	243
	30	7,1	300
	50	9,0	380
	90	12,0	503
160	20	5,6	391
	30	7,5	521
	50	9,4	658
	95	13,5	940
200	20	5,7	622
	30	6,9	757
	50	8,8	961
	90	13,2	1447
250	20	6,8	1166
	30	8,3	1431
	50	10,9	1872
	70	13,3	2296
315	20	6,8	1879
	30	8,4	2299
	50	11,1	3056
	85	13,3	3645
355	20	5,6	1959
	30	7,1	2493
	50	9,3	3241
	100	13,2	4630
400	20	5,1	2261
	30	8,2	3662
	50	11,0	4883
	75	14,3	6375

The air flow loss indicated refers to the minimum value for use in air supply.

NOMINAL AIR FLOWS	
Diameter (mm)	nominal Q (m <sup>3</sup> /h)
125	570
160	950
200	1500
250	2300
315	3600
355	4800
400	6300



## VARIABLE AIR FLOW UNITS

### NOISE DATA

CL-VCC  
CL-VCL  
SERIES

#### NOISE POWER OF THE GENERATED NOISE: CL-VCL SINGLE OR DOUBLE CASING

Ø mm	ΔP Pa	Q M³/h	Noise power (Lw-dB/ott.) frequencies (Hz)								dBa
			63	125	250	500	1000	2000	4000	8000	
125	200	60	47	22	23	18	17	17	18	17	26
		220	49	35	41	32	22	20	17	17	35
		400	49	40	36	35	26	22	18	17	35
		570	51	41	46	36	29	23	18	17	40
	500	60	43	30	31	26	20	20	17	17	29
		220	48	38	43	35	28	28	20	18	38
		400	50	57	51	44	35	32	32	24	47
		570	53	50	56	45	37	33	25	21	49
	1000	60	34	27	26	24	21	21	20	20	28
		220	46	42	47	40	33	32	24	22	42
		400	48	61	55	49	40	36	36	28	51
		570	51	54	60	50	42	37	29	25	53
160	200	100	41	26	27	21	19	19	17	17	27
		350	50	42	45	36	25	21	18	18	39
		700	58	46	50	40	31	25	20	19	44
		950	56	46	49	40	32	27	22	18	43
	500	100	43	32	33	26	20	20	18	18	30
		350	52	45	49	42	30	26	21	24	43
		700	57	54	57	49	36	30	23	21	51
		950	56	58	57	50	38	30	24	21	52
	1000	100	44	35	37	30	23	23	21	20	33
		350	52	48	52	45	34	30	24	24	46
		700	57	55	59	54	39	33	27	27	54
		950	55	61	61	55	41	34	27	26	56
200	200	230	34	30	32	27	21	20	19	18	30
		560	43	39	41	33	24	22	20	20	36
		1000	52	45	47	39	29	24	21	20	41
		1500	52	46	47	38	32	27	26	24	42
	500	230	43	37	38	33	26	23	21	20	35
		560	49	46	49	43	32	27	21	20	44
		1000	52	52	57	47	36	30	27	25	50
		1500	58	57	58	49	38	36	33	34	52
	1000	230	48	42	44	38	30	26	21	20	39
		560	51	49	54	47	38	33	31	28	49
		1000	54	55	60	52	42	36	35	33	54
		1500	58	61	64	56	44	39	36	35	58
250	200	250	40	34	34	28	21	19	17	17	30
		900	50	46	44	37	25	23	20	18	39
		1600	51	46	42	35	29	26	21	17	38
		2300	52	45	43	38	34	32	27	20	41
	500	250	45	37	38	32	23	21	19	18	34
		900	54	55	53	45	34	31	26	26	47
		1600	61	58	57	48	36	32	28	26	51
		2300	60	57	54	46	38	36	32	26	49
	1000	250	52	43	43	37	28	26	24	25	39
		900	55	57	58	49	40	36	31	32	52
		1600	63	66	65	55	44	40	35	34	59
		2300	66	67	65	56	44	42	37	34	59



## VARIABLE AIR FLOW UNITS

CL-VCC  
CL-VCL  
SERIES



### NOISE DATA

#### NOISE POWER OF THE GENERATED NOISE: CL-VCL SIMPLE AND DOUBLE CASING

Ø mm	ΔP Pa	Q M³/h	noise power (Lw-db/ott.) frequencies (Hz)								dBa
			63	125	250	500	1000	2000	4000	8000	
315	200	400	48	38	32	29	25	25	20	17	33
		1500	59	49	43	36	30	30	24	18	41
		2500	61	51	42	38	31	30	23	18	42
		3600	57	43	40	38	32	28	22	18	39
	500	400	55	44	40	35	31	32	33	29	40
		1500	64	58	51	44	38	39	33	26	48
		2500	72	61	56	46	39	40	34	26	52
		3600	73	63	55	49	40	39	34	26	53
	1000	400	67	48	44	39	35	35	31	30	45
		1500	67	63	58	51	45	45	40	33	55
		2500	72	61	65	55	45	47	42	35	59
		3600	78	61	65	56	46	47	41	35	60
355	200	500	47	37	33	27	20	21	17	17	31
		1800	58	48	44	35	25	21	22	18	39
		3300	62	53	51	42	32	28	26	22	46
		4800	71	63	56	49	40	36	31	27	53
	500	500	53	46	40	33	25	22	23	19	37
		1800	64	59	53	43	34	30	31	32	48
		3300	71	66	60	51	41	37	35	32	55
		4800	77	70	62	55	41	38	34	31	59
	1000	500	62	49	42	36	29	26	27	27	41
		1800	66	67	60	51	42	38	36	35	56
		3300	73	74	65	56	46	42	39	37	61
		4800	78	72	65	57	43	40	37	32	61
400	200	700	45	37	31	23	19	18	17	17	29
		2500	59	50	43	32	25	22	21	18	39
		4400	63	53	46	39	31	27	24	21	43
		6300	66	55	50	46	37	34	29	24	48
	500	700	54	46	40	33	24	23	25	20	37
		2500	65	61	53	43	34	33	34	33	49
		4400	73	67	58	48	39	36	34	29	55
		6300	71	62	57	52	38	36	32	27	54
	1000	700	62	52	45	37	30	28	30	29	43
		2500	67	66	58	50	41	39	40	39	55
		4400	75	73	65	54	45	42	41	36	61
		6300	73	64	60	54	40	38	35	29	56



## VARIABLE AIR FLOW UNITS

CL-VCC  
CL-VCL  
SERIES

### NOISE DATA

NOISE LEVEL OF THE IRRADIATED NOISE: CL-VCL SIMPLE CASING MODEL

Ø mm	ΔP Pa	Q M³/h	Noise power (Lw-db/ott.) frequencies (Hz)								dBa
			63	125	250	500	1000	2000	4000	8000	
125	200	60	44	22	21	17	17	17	17	17	25
		220	45	31	35	30	22	20	20	17	32
		400	45	34	36	32	25	21	18	17	33
		570	45	33	36	32	26	21	17	17	33
	500	60	33	23	24	22	19	19	17	17	26
		220	41	33	37	33	27	26	19	17	35
		400	45	42	45	43	35	31	23	19	43
		570	48	46	48	43	35	30	23	19	44
	1000	60	35	25	27	26	22	22	20	18	29
		220	41	38	43	39	34	33	25	21	41
		400	46	42	46	44	38	37	27	23	45
		570	49	46	49	44	38	36	27	23	46
160	200	100	41	25	24	20	18	18	22	22	28
		350	48	38	39	34	25	21	19	19	35
		700	56	42	46	39	30	24	20	19	41
		950	54	40	43	37	30	23	21	19	39
	500	100	41	28	28	25	20	21	20	19	29
		350	49	39	44	39	30	26	22	20	40
		700	57	50	53	49	36	30	24	20	49
		950	53	53	54	48	38	31	25	21	49
	1000	100	38	28	27	25	22	24	23	23	31
		350	49	40	48	45	36	32	26	24	45
		700	54	51	57	53	41	35	29	24	53
		950	53	53	57	55	41	35	29	24	54
200	200	230	37	30	31	26	23	22	20	19	30
		560	43	41	41	33	27	25	23	22	36
		1000	52	44	45	37	29	26	24	22	40
		1500	53	44	43	37	31	26	24	20	39
	500	230	46	36	38	32	26	24	22	20	35
		560	47	46	50	42	33	29	27	26	44
		1000	53	52	55	47	37	35	33	30	49
		1500	58	55	57	48	39	36	34	29	51
	1000	230	47	41	44	37	31	27	25	24	39
		560	53	46	53	46	41	38	37	31	49
		1000	52	53	59	51	42	38	35	33	53
		1500	56	60	63	54	44	40	37	35	57
250	200	250	40	33	34	27	20	19	17	17	30
		900	49	46	44	34	25	22	18	17	38
		1600	49	43	39	33	25	22	17	17	35
		2300	53	44	40	38	33	28	22	17	39
	500	250	43	37	38	31	25	22	18	17	34
		900	53	52	53	43	35	31	24	19	47
		1600	59	56	56	46	35	32	25	19	50
		2300	58	53	52	43	35	32	25	19	46
	1000	250	50	42	43	37	29	28	22	18	39
		900	55	55	58	48	41	37	29	24	52
		1600	61	63	65	54	44	41	33	26	58
		2300	64	63	63	54	44	42	34	27	57



## VARIABLE AIR FLOW UNITS

CL-VCC  
CL-VCL  
SERIES



### NOISE DATA

NOISE LEVEL OF THE IRRADIATED NOISE: CL-VCL SIMPLE CASING MODEL

Ø mm	ΔP Pa	Q M³/h	Noise power (Lw-db/ott.) frequencies (Hz)								dBa
			63	125	250	500	1000	2000	4000	8000	
315	200	400	46	35	32	28	25	26	19	17	32
		1500	59	48	41	34	31	31	23	17	40
		2500	59	47	41	35	30	29	22	17	39
		3600	56	41	40	37	30	27	21	17	38
	500	400	55	43	39	35	32	33	27	24	40
		1500	64	57	50	42	39	40	32	21	48
		2500	72	59	54	45	40	41	33	21	51
		3600	71	58	53	46	39	39	32	21	51
	1000	400	65	45	43	38	34	34	28	24	43
		1500	66	60	57	50	45	46	38	27	54
		2500	71	67	62	53	47	48	41	29	58
		3600	78	69	63	54	46	47	41	29	59
355	200	500	44	36	29	25	20	18	17	17	29
		1800	57	44	35	30	24	21	18	17	35
		3300	63	50	45	39	30	25	21	19	42
		4800	68	56	51	46	36	30	24	21	48
	500	500	51	44	36	31	25	21	19	18	34
		1800	64	56	49	42	34	29	24	25	46
		3300	72	62	57	48	39	36	27	25	53
		4800	76	63	56	50	40	37	28	21	54
	1000	500	58	48	38	36	30	27	22	20	39
		1800	65	62	56	49	42	37	31	28	52
		3300	73	71	62	53	45	40	33	30	59
		4800	78	65	58	51	42	38	30	27	56
400	200	700	44	38	30	23	18	18	17	17	28
		2500	58	49	38	30	24	21	18	17	37
		4400	64	57	45	37	30	26	21	19	44
		6300	66	56	46	43	35	31	25	21	46
	500	700	51	46	37	32	25	22	19	18	35
		2500	65	60	49	41	33	31	25	24	47
		4400	73	66	54	47	38	36	28	24	53
		6300	74	62	51	47	39	37	29	26	52
	1000	700	59	51	41	35	28	26	24	21	40
		2500	66	66	54	49	40	37	30	29	53
		4400	74	72	59	53	43	41	33	29	58
		6300	76	64	53	48	40	39	31	28	54



VARIABLE AIR FLOW  
UNITS

CL-VCC  
CL-VCL  
SERIES

NOISE DATA

NOISE LEVEL OF THE IRRADIATED NOISE: CL-VCL DOUBLE CASING MODEL

Diameter mm	Pressure diff. ΔP Pa	Air flow m³/h	Sound pressure dB(A)
125	200	60	15
	200	220	21
	200	400	22
	200	570	23
	500	60	16
	500	220	25
	500	400	32
	500	570	34
	1000	60	19
	1000	220	29
	1000	400	36
	1000	570	39
160	200	100	18
	200	350	25
	200	700	28
	200	950	31
	500	100	18
	500	350	29
	500	700	36
	500	950	39
	1000	100	21
	1000	350	35
	1000	700	41
	1000	950	43
200	200	230	19
	200	560	26
	200	1000	28
	200	1500	30
	500	230	24
	500	560	31
	500	1000	39
	500	1500	41
	1000	230	29
	1000	560	38
	1000	1000	42
	1000	1500	46
250	200	250	19
	200	900	25
	200	1600	27
	200	2300	29
	500	250	23
	500	900	35

Diameter mm	Pressure diff. ΔP Pa	Air flow m³/h	Sound pressure dB(A)
	500	1600	37
	500	2300	39
	1000	250	26
	1000	900	40
	1000	1600	45
	1000	2300	49
	315	200	400
200		1500	27
200		2500	29
200		3600	31
500		400	28
500		1500	36
500		2500	39
500		3600	41
1000		400	33
1000		1500	41
1000		2500	47
1000		3600	49
355	200	500	19
	200	1800	25
	200	3300	31
	200	4800	38
	500	500	24
	500	1800	35
	500	3300	42
	500	4800	44
	1000	500	29
	1000	1800	41
	1000	3300	47
	1000	4800	45
400	200	700	19
	200	2500	28
	200	4400	33
	200	6300	35
	500	700	25
	500	2500	28
	500	4400	42
	500	6300	43
	1000	700	28
	1000	2500	41
	1000	4400	46
	1000	6300	45

ROOM ABSORPTION: -8dB







## VARIABLE AIR FLOW UNITS



ACCESSORIES

CL-VCC  
CL-VCL  
SERIES

ADDITIONAL RECTANGULAR SILENCERS		
CODE	DIAMETER BOX mm	LENGTH mm
CL-VSR125	125	1000
CL-VSR160	160	1000
CL-VSR200	200	1000
CL-VSR250	250	1000
CL-VSR315	315	1000
CL-VSR355	355	1000
CL-VSR400	400	1000

AVAILABLE MOTORS	
	Siemens GDB181.1/E3
	Belimo LMV-D2MPVC
	Belimo NMV-D2MPVC
	Belimo NM24V + reg. VRD2

### NOTE

A standard motorisation is non provided, it will be necessary to always indicated the requested motor.

For help in the choice of motors please contact our commercial office.

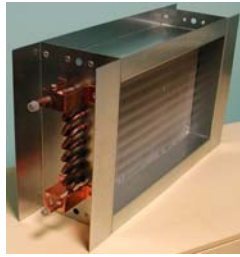
ORDER CODES - SHORT MODEL UNITS				
CL-VCC	XXX	X	X	X
short model	diameter (mm)	flow M=supply R=extraction	connectors D=right S=left	insulation N=simple casing I=double casing

ORDER CODES - MOTORS	
CL-VM	X
motor	model A=Siemens GDB181.1/E3 B=Belimo NMV-D2MPVC C=Belimo LMV-D2MPVC D=Belimo NM24V + reg. VRD2

ORDER CODES - EXTRA SILENT MODELS				
CL-VCL	XXX	X	X	X
short model	diameter (mm)	flow M=supply R=extraction	connectors D=right S=left	insulation N=simple casing I=double casing R= simp. casing+net T= dou. Casing + net







## COILS FOR VARIABLE AIR FLOW UNITS

DC-BAH  
SERIES

### OVERVIEW

#### Overview:

The DC-BAH series of heating coils are water-air heat exchangers. They are used at the end of the variable air flow boxes to obtain the heating of the injected air in the room.

#### Technical characteristics:

The DC-BAH series heating coils are comprised of:

- 1) supporting structure in galvanized steel;
- 2) blades or pack of blades
- 3) water connections
- 4) water release valve
- 5) drainage tap
- 6) protective arch
- 7) collector

The symmetric structure of the coil allows for fitting with connections on the right or left side.

#### Uses:

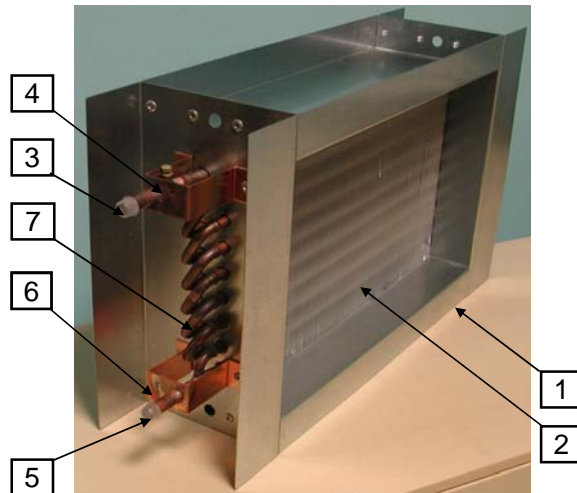
The DC-BAH series heating coils are used solely with the variable air flow boxes so as to maintain the best possible comfort heat levels, not only acting on the air flow, but also on the temperature of the injected air.

#### Product description for projects:

Heating coils, series DC-BAH, manufactured by MP3 Srl, made of galvanized steel complete of relieve valve, drainage tap, protective arch and collector.

#### Selection:

The choice of most suitable coil for a project is made in our commercial office with appropriate software.





## BATTERIE PER CASSETTE A PORTATA VARIABILE

SERIE  
DC-BAH

### MONTAGGIO

#### Fitting mode:

The DC-BAH series heating batteries are usually fitted at the bottom of the CL-VCL o CL-VCC series regulation boxes.

The box silencers house four filtering inserts M8, whereas the batteries house four holes Ø10 for the screws. The use of washers is advised.

#### Fitting position:

The water will always have to enter from the lowest inlet and exit from the highest.

The batteries can be made with the water connections on the left or right in relation to the air flow direction. If this is not indicated, they will be made with the connections on the right side.

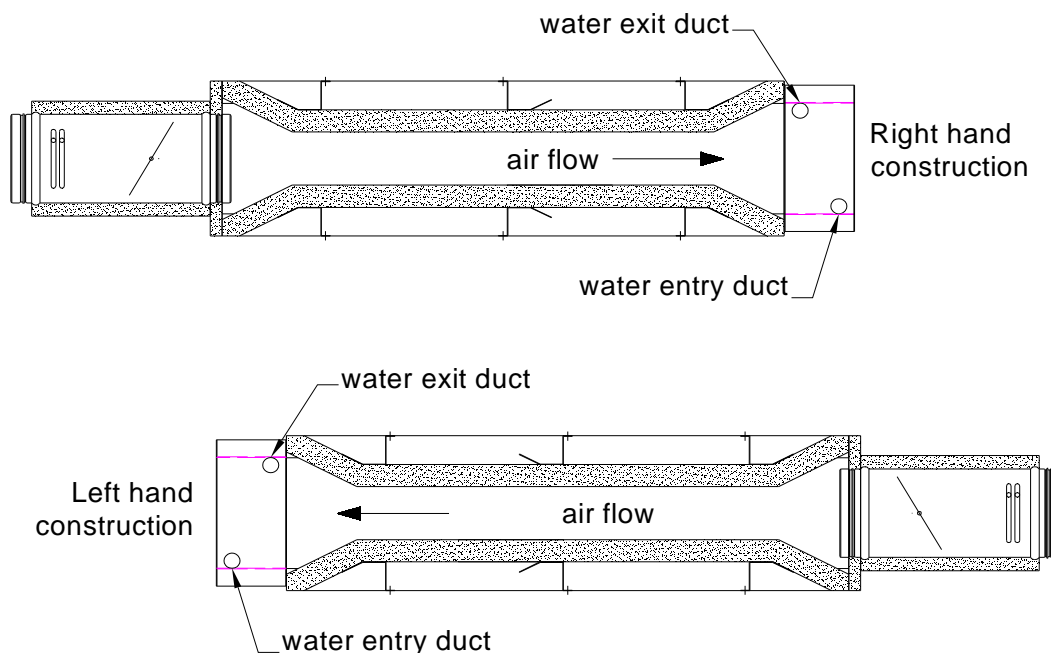
In correctly fitted models the connection for the exit will be the closest to the air entry side. The incorrect fitting of the battery entails a performance reduction of the heat exchange.

#### Precautions:

It is advisable to interject a suitable gasket between the box and the battery to eliminate air leaks.

Great care should be taken in handling the battery as the blades are composed of very thin blades easily bendable. Once filled, it is recommended to remove all remaining air by acting on the valve present on the higher duct.

If it is necessary to dismantle the battery, it is possible to empty it using the valve on the bottom duct.



CODES FOR REQUEST			
DC-BAH	XXX	X	X
water battery for box	bos diameter (mm)	D= right-hand connection S= left-hand connection	number of blade rows



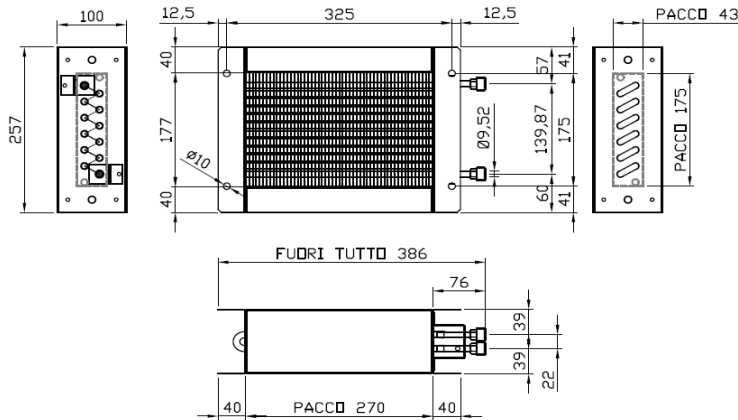
# COILS FOR VARIABLE AIR FLOW UNITS

DC-BAH  
SERIES

## OVERALL DIMENSIONS

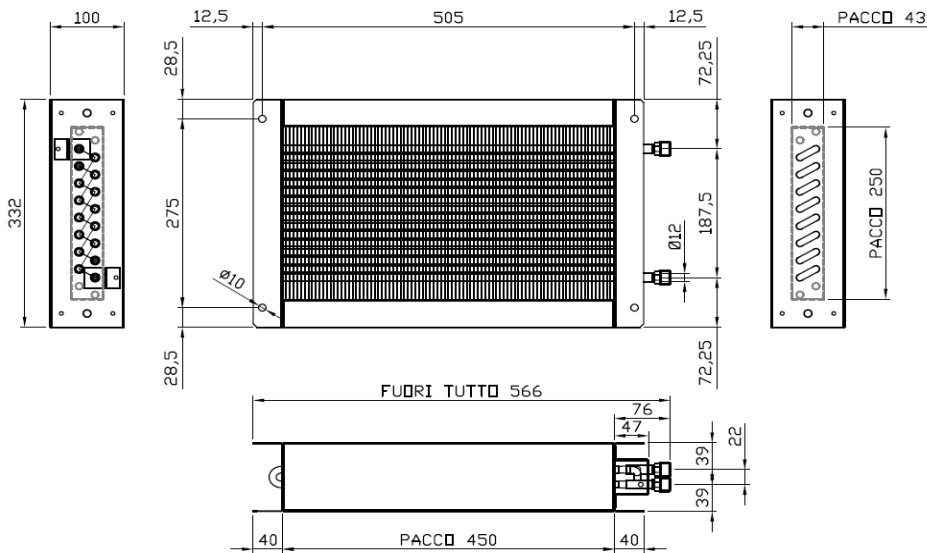
DC BAH 125 D2

DC BAH 160 D2



DC BAH 200 D2

DC BAH 250 D2





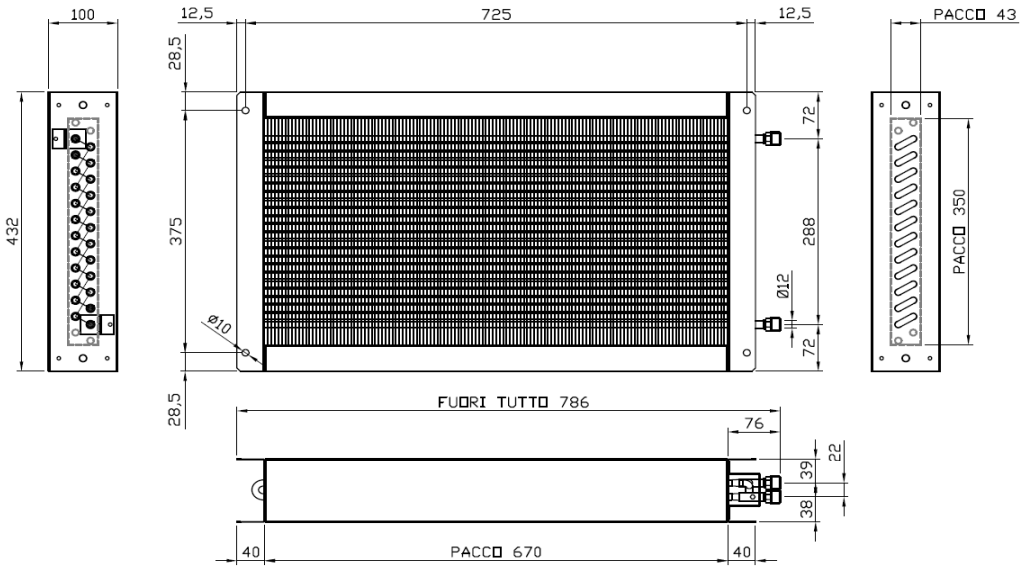
# COILS FOR VARIABLE AIR FLOW UNITS

DC-BAH  
SERIES

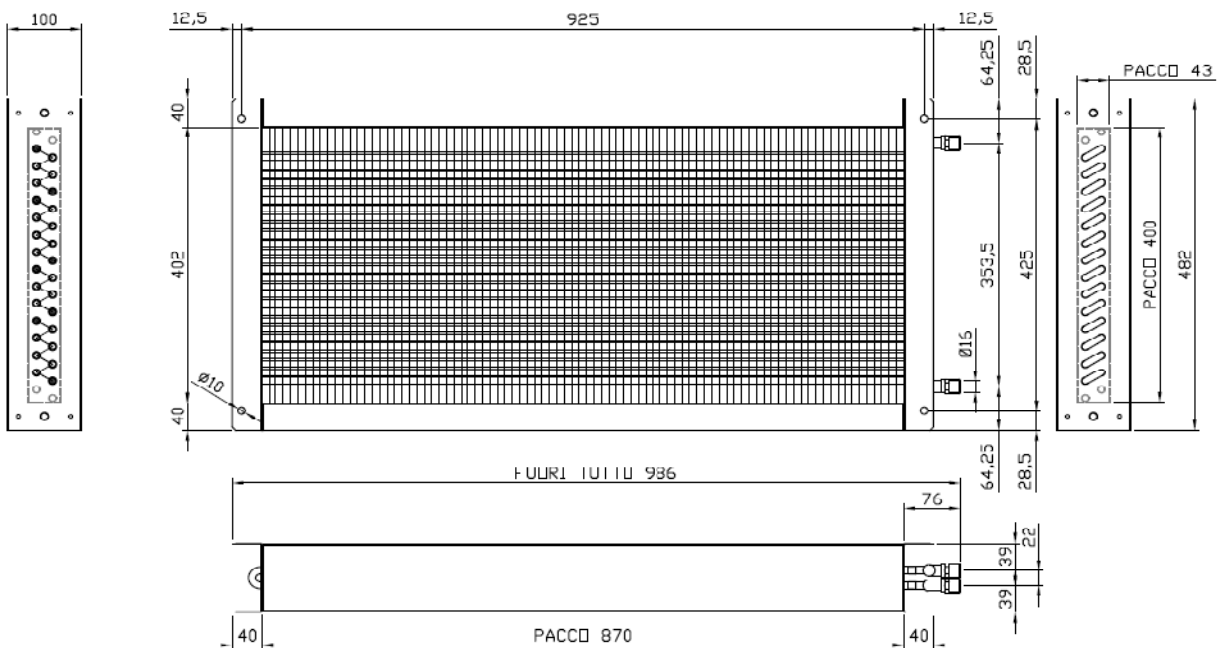
## OVERALL DIMENSIONS

DC BAH 315 D2

DC BAH 355 D2



DC BAH 400 D2





## RECTANGULAR CONSTANT AIR FLOW REGULATORS

AT-RPR  
SERIES

### OVERVIEW

#### Overview:

the AT-RPR series of constant air flow regulators are used to automatically regulate the flow in rectangular ducts at a fixed capacity.

The scope is to maintain the nominal value of the constant air capacity, continuously and independently from the pressure variations in the duct.

#### Working principle:

The constant air flow regulator works by means of a slidable asymmetric and angled plate that guaranties a sensitive response even at low air flows.

#### Pressure, precision and purpose:

The regulator efficiently operates from a minimum pressure different, which depends on the air speed (see diagram 1), up to a maximum pressure difference of 1,000 Pa.

The general variation in the air flow is included within a  $\pm 10\%$  tolerance. If the air speed is less than 4 m/s or if the regulator is installed horizontally, the variations can be higher than those indicated.

This also occurs when the air speed profile is not uniform or is distorted by curves, edges, bottle necks or dirt.

#### Temperature:

The control system operated within a temperature range of between  $-30\text{ }^{\circ}\text{C}$  and  $+100\text{ }^{\circ}\text{C}$ .

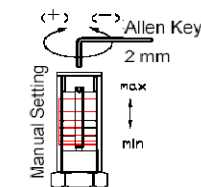
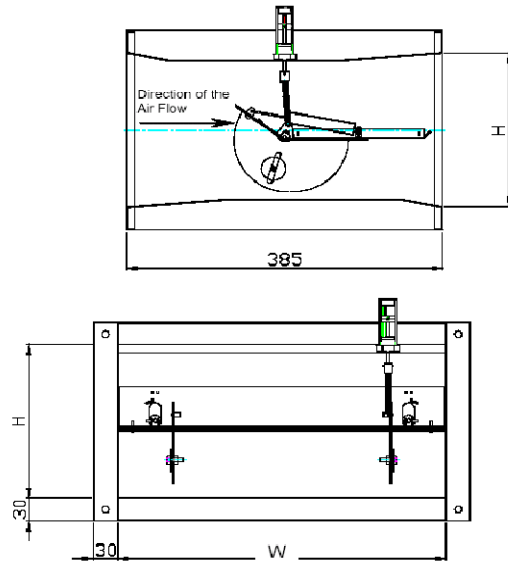
A special heat resistant version can withstand temperatures up to  $250\text{ }^{\circ}\text{C}$  ( $300\text{ }^{\circ}\text{C}$  for short periods) and is available on request.

For air flow controllers with electric or pneumatic actuators, it will be necessary to take into account the operational temperature range of the actuators themselves.

#### Construction:

The control plate is supported by two slidable buffers made in PTFE that do not require maintenance. The pneumatic dampers avoid vibrations and oscillations of the control plate and guaranty a sensible response behaviour and precise control.

#### AT-RPR : dimensions and



#### Specifications:

- Self regulating, constant air flow regulator.
- Factory presetting to customer requested value
- Manual setting of the air flow through the calibration device.
- Variable base and height, length constant at 385 mm
- Base value between 150 mm and 600 mm
- Heights between 150 mm and 300 mm
- The base must be between the value of the height and its double ( $H \leq W \leq 2H$ )
- Fixing through 4 30 mm holes on flanges



## RECTANGULAR CONSTANT AIR FLOW REGULATORS

AT-RPR  
SERIES

### TECHNICAL SPECIFICATIONS

#### Installation:

The precise balancing of the control plate by means of a counter-weight, guaranties an exact control in any installation. It is recommended that the front air speed profile be as much as possible undisturbed because possible distortions (asymmetric to the flow of air on entry, bottle necks and edges) can have negative effects on the response and control.

#### Calibration:

The air flow regulators can be supplied either with setting made by the customer or precalibrated in the factory using customer requested values. By means of a 2mm special key, the air flow can easily be set or reset within the range of the corresponding scale by the customer directly. On request, the nominal value of the air flow can also be set by means of the pneumatic or electric actuator.

#### Sizing:

Before sizing a duct system and choosing a certain air flow regulator, it is necessary to consider that the air speed inside the ducts should be between 3 and 10 m/s.

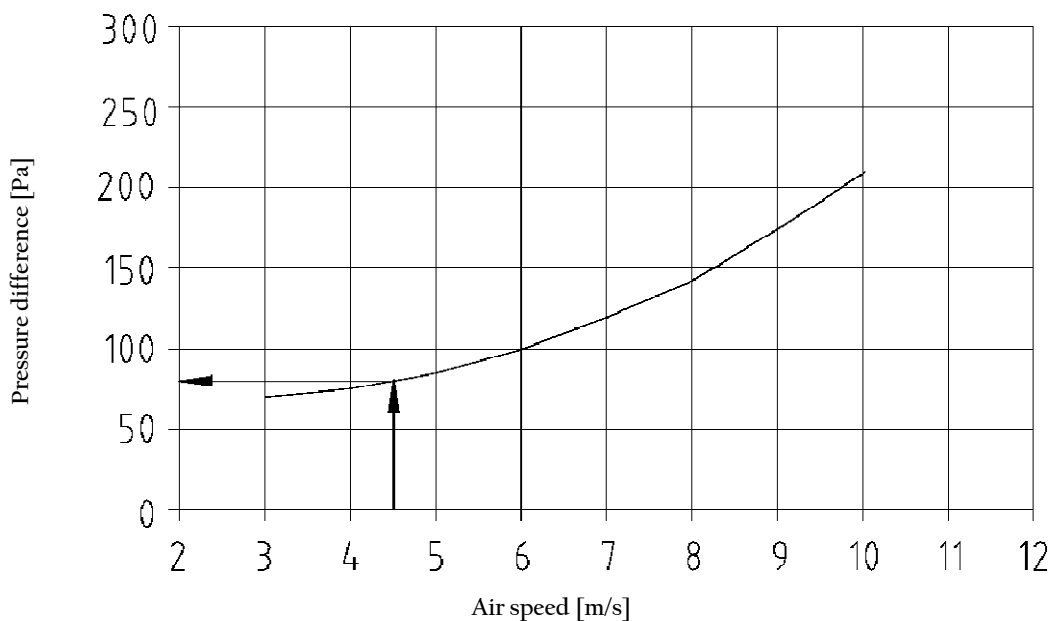
The ducts directly before and after of the air flow regulator should have the same dimensions (base and height) of the regulator itself. As a nominal or reference value, it is recommended an average air speed of about 6.5 m/s.

#### Insulation:

The air flow regulator can be supplied with a thermal and acoustic insulation of 30 mm. For insulations made by the customer, these must be extended to the regulation device or to the electric or pneumatic actuator. In this case it will be the client themselves to specify the thickness of the insulation.

#### Note on the installation:

IN conformity to DIN 1946T2, it is necessary to foresee the accessibility to the constant air flow regulator and to the duct systems to allow maintenance and calibration.

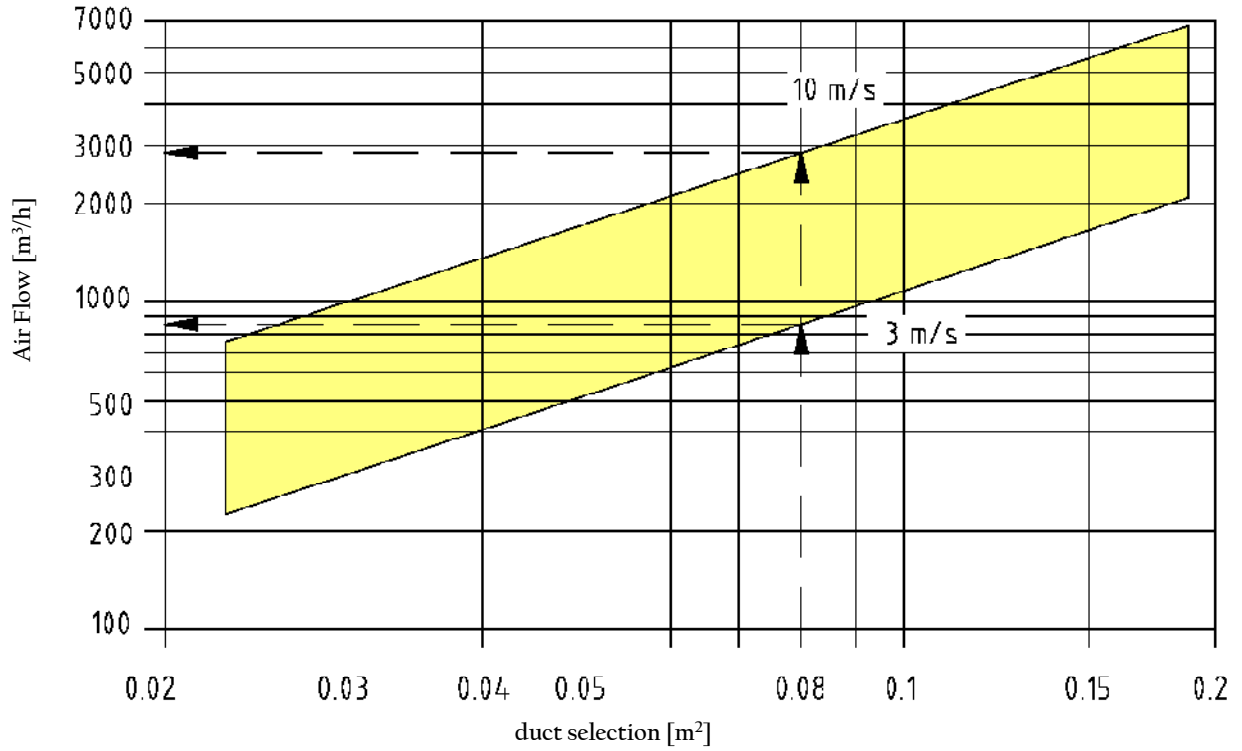




# RECTANGULAR CONSTANT AIR FLOW REGULATORS

AT-RPR  
SERIES

## PERFORMANCE



base (mm)	height (mm)	speed m/s	air flow m³/h	100 Pa								LwA dBa
				Lw dB								
				63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
150	150	3	243	49	48	47	45	43	41	39	36	49
		6	486	54	54	52	51	49	48	45	43	55
		9	729	57	56	56	54	53	51	49	47	58
300	150	3	486	52	50	49	47	45	43	40	37	50
		6	972	56	56	54	53	51	49	47	44	57
		9	1458	59	59	58	56	55	53	51	48	60
200	200	3	432	52	50	49	47	45	43	40	37	50
		6	864	56	56	54	53	51	49	47	44	57
		9	1296	59	59	58	56	55	53	51	48	60
300	200	3	648	53	52	50	48	46	44	41	38	51
		6	1296	58	57	56	54	52	50	48	45	58
		9	1944	61	60	59	57	56	54	52	49	61
400	200	3	864	54	52	51	49	47	44	41	38	52
		6	1728	59	58	56	55	53	51	48	45	58
		9	2592	61	61	60	58	56	54	52	49	62
300	300	3	972	54	53	51	49	47	45	42	39	53
		6	1944	60	58	57	56	54	51	49	46	59
		9	2916	62	62	60	59	57	55	53	50	63
450	300	3	1458	56	54	53	50	48	46	43	39	54
		6	2916	61	60	58	57	55	52	50	47	60
		9	4374	64	63	62	60	58	56	54	51	64
600	300	3	1944	56	55	53	51	49	46	43	40	54
		6	3888	62	60	59	57	55	53	50	47	61
		9	5832	65	64	62	61	59	57	54	51	64



## RECTANGULAR CONSTANT AIR FLOW REGULATORS

AT-RPR  
SERIES

### PERFORMANCE

base (mm)	height (mm)	speed m/s	air flow m <sup>3</sup> /h	250 Pa								LwA dBa
				Lw dB								
				63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
150	150	3	243	57	56	55	53	51	49	47	44	57
		6	486	62	61	60	59	57	55	53	51	63
		9	729	65	64	63	62	61	59	57	55	66
300	150	3	486	60	58	57	55	53	51	48	45	58
		6	972	64	64	62	61	59	57	55	52	65
		9	1458	67	66	66	64	63	61	59	56	68
200	200	3	432	60	58	57	55	53	51	48	45	58
		6	864	64	64	62	61	59	57	55	52	65
		9	1296	67	66	66	64	63	61	59	56	68
300	200	3	648	61	60	58	56	54	52	49	46	59
		6	1296	66	65	64	62	60	58	56	53	66
		9	1944	69	68	67	65	64	62	59	57	69
400	200	3	864	62	60	59	57	55	52	49	46	60
		6	1728	67	66	64	63	61	59	56	53	66
		9	2592	69	69	68	66	64	62	60	57	70
300	300	3	972	62	61	59	57	55	53	50	47	61
		6	1944	67	66	65	63	62	59	57	54	67
		9	2916	70	69	68	67	65	63	61	58	71
450	300	3	1458	64	62	60	58	56	53	51	47	62
		6	2916	69	68	66	65	63	60	58	55	68
		9	4374	72	71	70	68	66	64	62	59	72
600	300	3	1944	64	63	61	59	57	54	51	48	62
		6	3888	70	68	67	65	63	61	58	55	69
		9	5832	73	72	70	69	67	65	62	59	72

base (mm)	height (mm)	speed m/s	air flow m <sup>3</sup> /h	500 Pa								LwA dBa
				Lw dB								
				63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
150	150	3	243	63	62	61	59	57	55	53	50	63
		6	486	68	67	66	65	63	62	59	57	69
		9	729	71	70	69	68	67	65	63	61	72
300	150	3	486	66	64	63	61	59	57	54	51	64
		6	972	70	70	68	67	65	63	61	58	71
		9	1458	73	73	72	70	69	67	65	62	74
200	200	3	432	66	64	63	61	59	57	54	51	64
		6	864	70	70	68	67	65	63	61	58	71
		9	1296	73	73	72	70	69	67	65	62	74
300	200	3	648	67	66	64	62	60	58	55	52	65
		6	1296	72	71	70	68	66	64	62	59	72
		9	1944	75	74	73	71	70	68	65	63	75
400	200	3	864	68	66	65	63	61	58	55	52	66
		6	1728	73	72	70	69	67	65	62	59	72
		9	2592	75	75	74	72	70	68	66	63	76
300	300	3	972	68	67	64	63	61	59	56	53	67
		6	1944	74	72	71	69	68	65	63	60	73
		9	2916	76	75	74	73	71	69	67	64	77
450	300	3	1458	70	68	67	64	62	59	57	53	68
		6	2916	75	74	72	71	69	66	64	61	74
		9	4374	78	77	76	74	72	70	68	65	78
600	300	3	1944	70	69	67	65	63	60	57	54	68
		6	3888	76	74	73	71	69	67	64	61	75
		9	5832	79	78	76	75	73	71	68	65	78



## CIRCULAR AIR FLOW REGULATORS

AT-RPC  
SERIES

### OVERVIEW

#### Overview:

The AT-RPC series air flow regulators are independent control units that work without absorbing any external power. These regulators can be considered as self regulating duct dampers able to supply a flow of air requested independently from the variations of pressures in the system. As a result, the control system guarantees the balancing requirements of the system and ensures a constant air flow.

Variable airflow models are available with electric or pneumatic actuators.

#### Working principle :

The air flow control system works by means of a free control plate, supported by two buffers in PTFE and connected to a calibrated spring. The aerodynamic forces contrast the force of the spring e push on the plate to the point of moving it into a position that in the end controls the flow of air.

#### Pressure, precision and purpose:

The control system work reliably starting from a minimum pressure difference which depends on the air speed (see diagram 1) up to a maximum pressure difference of 1000 Pa.

Generally, the variation in air flow is within a  $\pm 10\%$  tolerance (up to 100 m<sup>3</sup>/h :  $\pm 10$  m<sup>3</sup>/h). IF the air speed is below 4 m/s or the control system is installed horizontally, the variations may be greater that those indicated. This occurs even when the profile of the air speed is not uniform or is distorted by curves, edges or bottle necks. Furthermore, the recommended air speed is around 4.5 m/s and should not be below 2.7 m/s.

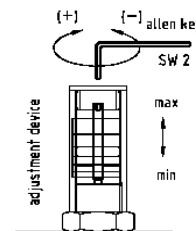
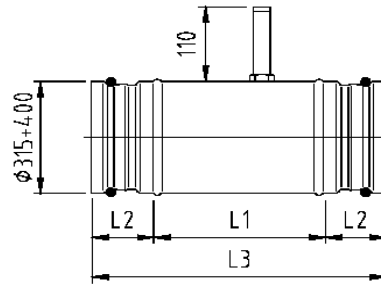
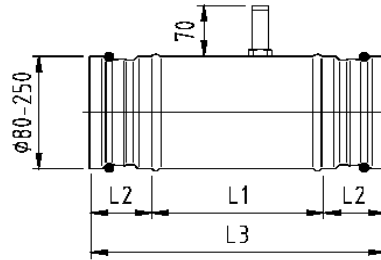
#### Temperature:

The control system operated within a temperature range of between -30 °C and +100 °C.

A special heat resistant version can withstand temperatures up to 250 °C (300 °C for short periods) and is available on request.

For air flow controllers with electric or pneumatic actuators, it will be necessary to take into account the operational temperature range of the actuators themselves.

#### AT-RPC : dimensions and construction



Diameter [mm]	L1 [mm]	L2 [mm]	Air flow ranges [m <sup>3</sup> /h]
100	170	40	[ 70 - 200 ]
125	170	40	[ 100 - 280 ]
160	240	40	[ 180 - 500 ]
200	240	40	[ 250 - 900 ]
250	240	40	[ 500 - 1.500 ]
315	220	60	[ 600 - 2.000 ]
400	295	60	[ 1.000 - 2.700 ]



## CIRCULAR AIR FLOW REGULATORS

AT-RPC  
SERIES

### TECHNICAL SPECIFICATIONS

#### Construction:

The shell of the control system is in galvanized steel and plate laser welded without deformations. The smooth surface of the casing allows the insertion of calibrated and shaped terminal connections with a rubber circular gasket. The air tight system is patented and offers various advantages, such as rigidity, easy fitting and removing, resulting in reduced installation costs.

In addition and on request, the control system is available with a new type of fixing with a screwless flange. This type of fixing facilitates the maintenance and the work through the removal of the closing rings placed at the extremities without the need or dismantling the complete duct.

The control plate is supported by buffers in PTFE and equipped with an actuator to avoid any possible oscillation of the plate.

The control system is also available on request in stainless steel or with a PUR coating or in different RAL colours.

#### Installation and calibration:

The control system can be used in supply or extraction ducts, in high or low pressure ventilation systems. Both vertical and horizontal installations are possible as a result of the exact balancing of the control plate.

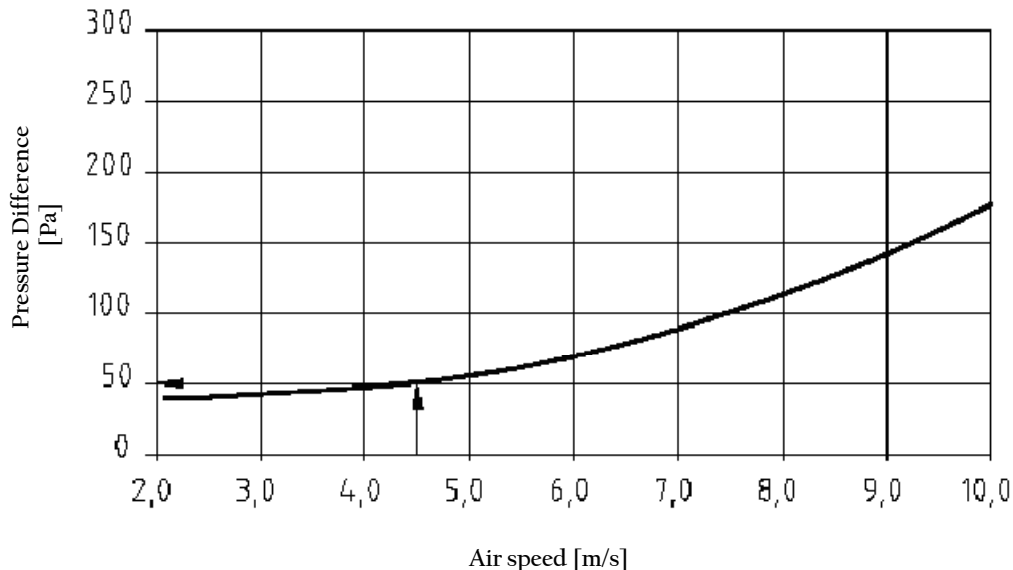
All controls can be calibrated for the air flow requested, directly in the factory.

The manually calibrated control system can be easily set and reset directly by the customer.

Any working value can be chosen as long as it is within the operating range of the control system.

#### Insulation:

On request, the control may be supplied with insulation of 25 or 50 mm thickness to reduce the noise or heat dispersion.





## CIRCULAR AIR FLOW REGULATORS

AT-RPC  
SERIES

### PERFORMANCE

diameter mm	air flow m <sup>3</sup> /h	100 Pa Lw dB								LwA dBa
		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
80	40	37	37	35	33	33	33	28	27	38
	82	49	47	44	41	39	39	33	32	45
	125	52	51	48	45	44	44	38	37	49
100	70	40	39	38	36	35	36	30	29	41
	135	50	48	45	42	41	40	34	33	46
	200	54	52	49	47	45	45	39	38	51
125	100	41	40	38	36	35	36	30	29	41
	190	51	49	46	42	41	40	34	32	46
	280	54	53	50	47	45	45	39	37	50
140	140	43	42	40	38	37	37	31	30	42
	270	53	51	47	44	43	42	36	34	48
	400	56	55	52	49	47	47	41	39	52
160	180	44	43	41	39	38	38	32	31	43
	340	53	51	48	44	43	42	36	34	48
	500	57	55	52	49	47	47	40	39	52
200	250	45	43	41	39	38	37	31	30	43
	575	55	53	50	46	44	44	37	36	50
	900	-	-	-	-	-	-	-	-	-
250	500	48	47	45	43	41	41	35	34	47
	1000	57	55	52	49	47	46	39	38	52
	1500	-	-	-	-	-	-	-	-	-
315	600	48	46	44	41	39	39	32	31	44
	1400	57	55	52	48	46	45	39	37	51
	2200	-	-	-	-	-	-	-	-	-
400	1000	50	48	45	42	41	40	33	31	46
	2200	58	56	52	49	47	46	39	37	52
	3800	-	-	-	-	-	-	-	-	-

diameter mm	air flow m <sup>3</sup> /h	250 Pa Lw dB								LwA dBa
		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
80	40	39	42	43	44	44	46	41	41	50
	82	51	51	50	49	48	49	44	44	54
	125	61	60	57	54	53	53	47	46	58
100	70	43	45	46	46	47	49	44	43	53
	135	59	57	54	51	50	49	43	42	55
	200	63	61	58	55	54	54	48	47	59
125	100	45	47	47	48	48	49	44	43	54
	190	55	54	53	51	51	51	46	45	56
	280	63	61	58	55	54	53	47	46	59
140	140	47	49	49	49	50	51	46	45	55
	270	61	59	56	53	51	51	44	43	57
	400	65	63	60	57	56	55	49	48	61
160	180	48	50	50	50	50	51	46	45	56
	340	62	60	56	53	51	51	44	43	57
	500	66	64	61	58	56	55	49	48	61
200	250	51	52	52	51	51	51	45	44	56
	575	64	62	58	55	53	53	46	45	59
	900	68	66	63	60	58	58	52	50	64
250	500	54	56	55	55	54	55	49	48	60
	1000	66	64	61	57	55	55	48	47	61
	1500	70	68	65	62	60	60	53	52	65
315	600	55	56	55	54	53	53	46	44	58
	1400	66	64	60	57	55	54	47	46	60
	2200	71	69	65	62	60	59	53	51	65
400	1000	58	59	57	56	55	54	47	45	59
	2200	67	65	61	57	55	54	48	46	61
	3800	73	71	67	64	62	61	55	53	67



## CIRCULAR AIR FLOW REGULATORS

AT-RPC  
SERIES

### PERFORMANCE

diameter mm	air flow m <sup>3</sup> /h	500 Pa Lw dB								LwA dBa
		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
80	40	46	49	49	50	51	53	48	48	57
	82	58	58	56	55	55	56	51	51	61
	125	68	66	63	61	59	59	53	52	65
100	70	49	52	52	53	54	55	50	50	60
	135	60	60	58	57	57	58	53	52	63
	200	70	68	65	62	61	60	54	53	66
125	100	52	54	54	54	55	56	50	49	60
	190	61	61	59	58	57	58	52	52	63
	280	64	64	62	61	61	62	57	56	67
140	140	53	56	56	56	56	58	52	51	62
	270	63	63	61	60	59	60	54	54	65
	400	72	70	67	64	62	62	56	55	68
160	180	55	57	57	57	57	58	53	51	63
	340	64	64	62	60	60	60	55	54	65
	500	72	70	67	64	62	62	56	54	68
200	250	57	59	58	58	57	58	52	50	63
	575	66	66	64	62	62	62	56	56	67
	900	75	73	70	67	65	65	58	57	70
250	500	61	62	62	61	61	62	56	54	66
	1000	69	68	67	65	64	64	59	58	69
	1500	77	75	72	68	67	66	60	58	72
315	600	62	63	62	61	60	59	53	51	65
	1400	70	69	67	65	64	64	58	57	69
	2200	77	75	72	69	67	66	60	58	72
400	1000	65	65	64	62	61	61	54	51	66
	2200	72	71	68	66	65	65	59	57	70
	3800	79	77	74	70	68	68	61	60	74



## CONSTANT AIR FLOW REGULATORS

AT-KVR  
SERIES

### OVERVIEW

#### Overview :

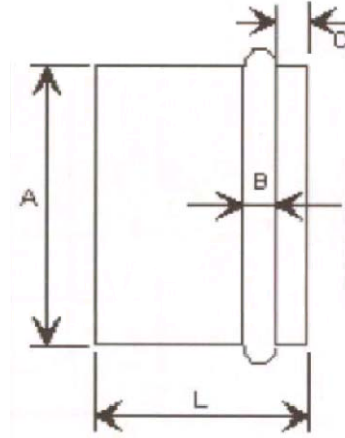
The AT-KVR series constant air flow regulators are independent control units that work without absorbing any external power. These regulators are manufactured in PVC in fire class M1. They guarantee the flow of air within a range of pressure loss between 50 Pa and 200 Pa and can be used up to temperatures of 60 °C.

The AT-KVR units are composed of a PVC envelope with a regulation valve also in PVC together with a spring and a small piston.

The requested air flow must be indicated when ordering.

#### Build dimensions :

AT-KVR : dimensions and build



Diameter [mm]	A [mm]	L [mm]	B [mm]	C [mm]
80	78	90	15	13
100	95	90	15	13
125	119	90	15	13
160	154	120	15	18
200	194	120	15	18
250	--	--	--	--

#### Air flow calibration per model :

Diametro [mm]	Portate [m <sup>3</sup> /h]																							
	15	30	45	50	60	75	90	100	120	150	180	210	240	270	300	350	400	450	500	550	600	650	700	
80	✓	✓	✓	✓	✓																			
100	✓	✓	✓	✓	✓	✓	✓	✓																
125	✓	✓	✓	✓	✓	✓	✓	✓	✓															
160									✓	✓	✓	✓	✓	✓	✓									
200													✓	✓	✓	✓	✓	✓	✓					
250																				✓	✓	✓	✓	✓
250																								

N.B. : Different calibration air flows are possible for large quantities with an additional 10% on the price.





## DOUBLE DUCT VARIABLE AIR FLOW CONTROLLERS

CL-VCD  
SERIES

### OVERVIEW

#### Overview :

Variable air flow controllers series CL-VCD are air flow regulation units that allow the mixing of hot and cold primary air to obtain the ideal temperature of the air supplied maintaining the continuous control of the air quality in variable air flow systems.

The complete closure is certified according to EN 1751-EN 1886 standards.

#### Technical characteristics:

The double duct controller units type CL-VCD include:

- galvanized steel casing with base supports for fitting on site using hanging ties;
- circular connection for cold air with dynamic  $\Delta p$  probe driven by an electrical motor for measuring and regulation in relation to the requirement of the room itself;
- circular connection with damper driven by electrical regulation motor for the regulation and maintenance of the air flow in relation to the requirement of the room itself;
- rectangular exit on the low speed side with dynamic  $\Delta p$  probe for measuring the total supplied air flow;
- silencer section with sound absorbing rock wool material, covered with a black protective film, resistant to fire, class M0.

#### Applications :

The CL-VCD series are used to supply a variable air flow to the area to be conditioned in relation to the variation of the its thermal loads to maintain the maximum thermal comfort conditions.

Differently to single duct units, the ideal air temperature is obtained by mixing hot and cold air instead of regulation the power supply of the pre heating coil.

The auto generated irradiated noise tests have been carried out according to EN ISO 3741 standard.

#### Tender description :

Double duct variable air flow supply control unit, CL-VCD type sold by MP3 Srl, made of galvanized steel complete with differential pressure sensor, air flow regulators and actuators.

#### Accessories :

- additional silencer;
  - double casing;
  - equalising net to be installed to the entry point to better distribute the air flow;
  - micro stretched protection net of noise absorbing material;
- Other coatings, also in glass fibre, to be chosen at the request stage.

#### Models :

With motors:

- Siemens GDBI81.1/E3;
- Belimo NMV-D2MPVC;
- Belimo LMV-D2MPVC;
- Belimo NM24V + reg. VRD2;
- other motors to be agree at tender stage.

Possibility of interfacing with extraction VAV units to guarantee positive or negative pressures in relation to the use of the room.

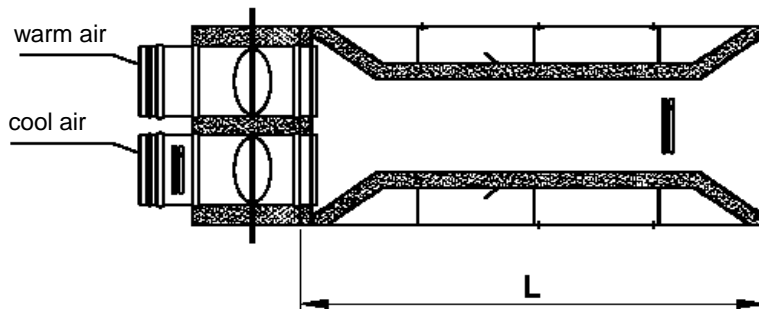
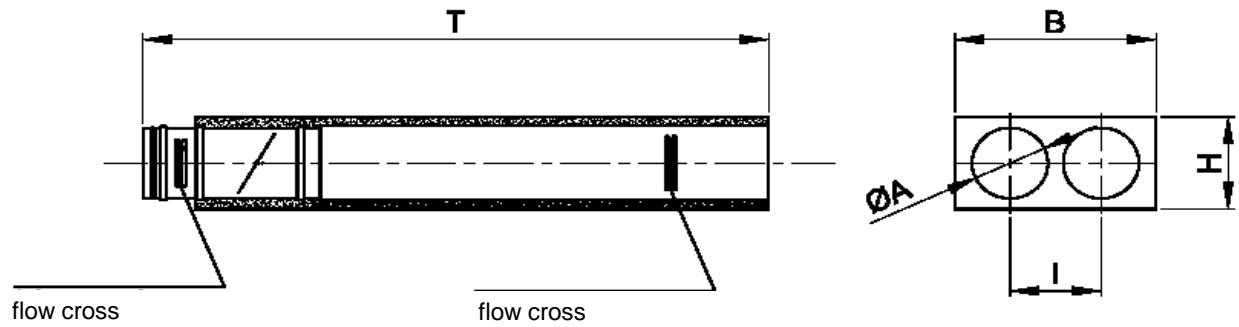
The units are normally supplied complete with actuators calibrated on our premises according to customer requests. For request of units without actuators, which will need to be installed anyway by the customer on site, MP3 can not guarantee in any way the correct working of the apparatus.



DOUBLE DUCT  
VARIABLE AIR FLOW CONTROLLERS

CL-VCD  
SERIES

DIMENSIONS



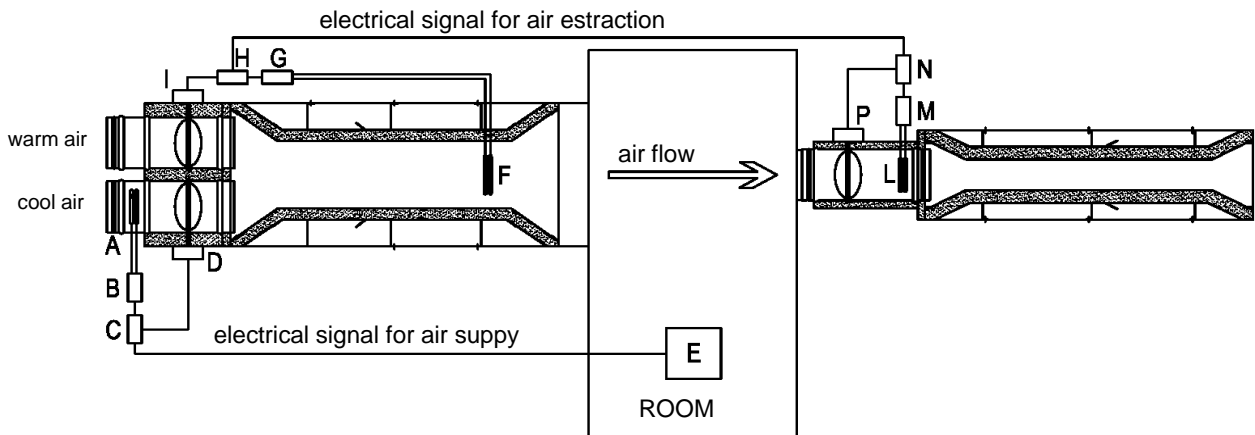
Ø A (mm)	B (mm)	H (mm)	I (mm)	L (mm)	T (mm)
125	380	185	165	1000	1350
160	450	220	200	1000	1400
200	530	260	240	1200	1650
250	630	310	290	1200	1700
315	760	375	355	1400	2000
355	840	415	395	1400	2100
400	930	460	440	1500	2200



## DOUBLE DUCT VARIABLE AIR FLOW CONTROLLERS

CL-VCD  
SERIES

STANDARD INSTALLATION



- A probe for differential pressure of cold air flow
- B pressure transducer for cold air flow
- C signal regulator/equalizer for cold air flow
- D damper servomotor for cold air flow
- E room temperature sensor
- F probe for differential pressure of total supply air flow
- G pressure transducer for total air flow
- H signal regulator/equalizer for total air flow
- I damper servomotor for hot air flow
- L probe for differential pressure of total extraction air flow
- M pressure transducer for total extraction air flow
- N signal regulator/equalizer for total extraction air flow
- O damper servomotor for total extraction air flow

### AIR SUPPLY SECTION

The temperature sensor E adjusts the cold air flow using an electrical signal.

The cold air flow is kept independent of the conditions upstream through the pressure differential probe A, which, using the transducer B emits a signal compared with the control C with the room temperature sensor E. ON the basis of the comparison between the two signals, the controller C modulates the opening of the cold air supply damper through servomotor D.

The total flow of air into the room is detected by the differential pressure probe F which through the transducer G emits a signal to regulator H using the servomotor I modulating the opening of the damper for the hot air supply.

### AIR EXTRACTION SECTION

The pressure differential probe L and through transducer M emits a signal proportional to the total extraction air supply compared with the regulator N with the proportional signal tot the total supply air flow emitted from regulator H. on the basis of a comparison between the two signals, controller H modulates the opening of the extraction damper through servomotor P.

This procedure will allow to always keep the environment in desired pressure conditions, which can be equal, greater or less than the atmospheric pressure external according to the type of activities within the environment itself.



## DOUBLE DUCT VARIABLE AIR FLOW CONTROLLERS

CL-VCD  
SERIES

### AIR FLOW - PRESSURE LOSSES

#### Regulator calibration and servomotor selection

For the calibration of the CL-VCD unit the maximum and minimum air flows will need to be indicated for the specific application.

These air flows will need to be included in the table below.

For any supplies without engine, which will nevertheless be applied and calibrated by the customer, MP3 can not guarantee in any way the proper operation within the environment itself.




#### Conditions of installation

For a correct reading of pressures and for a air flow tolerance of 5%, upstream section of straight channel of length equal to 2/3 times the size of the diameter of the regulator should be installed. in the opposite case, the air flow may suffer variations between 10% and 20% compared to the calibrated value.

#### Pressure losses with closed damper:

The seal is fitted in the perimeter of the damper, it maintains a level of pressure losses below 0.1% of the nominal air flow,, with a maximum pressure of 1000 Pa. The air seal is certified according to EN 1751 EN-1886.

AIR FLOWS AND PRESSURE LOSSES			
Diameter (mm)	Maximum Q (m <sup>3</sup> /h)	Minimum Q (m <sup>3</sup> /h)	Minimum Δp (pA)
125	570	170	150
160	950	280	150
200	1500	450	150
250	2300	690	150
315	3600	1100	150
355	4800	1440	150
400	6300	1890	150

AVAILABLE SERVOMOTORS	
	Siemens GDB181.1/E3
	Belimo LMV-D2MPVC
	Belimo NMV-D2MPVC
 	Belimo NM24V + reg. VRD2



DOUBLE DUCT  
VARIABLE AIR FLOW CONTROLLERS

CL-VCD  
SERIES

ACOUSTIC DATA

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
125	200	170	32	38	27
		303	35	40	29
		437	37	41	30
		570	39	42	31
	500	170	38	42	32
		303	43	47	37
		437	46	50	40
		570	49	52	42
	1000	170	40	46	36
		303	47	50	41
		437	51	53	44
		570	54	55	47

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
160	200	280	35	42	32
		503	40	45	35
		727	43	47	37
		950	45	49	38
	500	280	40	46	35
		503	46	52	41
		727	50	55	44
		950	53	58	47
	1000	280	44	50	40
		503	50	56	46
		727	54	60	49
		950	56	63	52

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
200	200	450	34	42	32
		800	38	45	35
		1150	41	47	37
		1500	43	49	38
	500	450	41	49	38
		800	47	54	44
		1150	50	58	47
		1500	53	60	50
	1000	450	46	54	43
		800	52	59	48
		1150	55	63	52
		1500	58	65	54

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
250	200	690	36	42	32
		1227	38	45	34
		1763	40	46	36
		2300	41	47	37
	500	690	43	50	39
		1227	47	54	43
		1763	50	56	46
		2300	52	58	48
	1000	690	49	57	45
		1227	55	62	51
		1763	58	65	54
		2300	61	67	57

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
315	200	1100	37	44	34
		1933	39	46	36
		2767	41	47	38
		3600	42	48	39
	500	1100	47	54	42
		1933	50	57	45
		2767	52	59	48
		3600	54	60	49
	1000	1100	52	59	48
		1933	56	63	52
		2767	59	66	55
		3600	61	68	57

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
355	200	1440	39	44	34
		2560	45	49	38
		3680	48	52	41
		4800	51	54	43
	500	1440	47	52	42
		2560	53	57	47
		3680	56	61	50
		4800	59	63	52
	1000	1440	52	57	46
		2560	57	62	51
		3680	61	65	54
		4800	63	67	56

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
400	200	1890	37	44	34
		3360	42	49	39
		4830	45	52	41
		6300	47	54	43
	500	1890	46	52	40
		3360	51	57	45
		4830	54	60	48
		6300	56	62	50
	1000	1890	51	57	45
		3360	55	61	50
		4830	58	64	53
		6300	60	66	55

Lw1- Noise pressure in the duct on exit from the unit  
 Lw2- Irradiated noise pressure - simple casing version  
 Lw3- Irradiated noise pressure - double casing version